Issued with January Number, 1900.

Proceedings.

COUNCIL.

NAMES PROPOSED FOR MEMBERSHIP.

Archibald, Eben H., 109 Ellery St., Cambridge, Mass.
Ballard, J. Clarence, U. S. Exp. Station, Lafayette, Ind.
Behr, Gustave E., Jr., 1256 Massachusetts Ave., Cambridge, Mass.
Black, Otis F., 10 Avon St., Cambridge, Mass.
Bonnet, Frederic, Jr., 13 Mellen St., Cambridge, Mass.
Cohoe, Wallace P., 14 Boylston Hall, Cambridge, Mass.
Colhane, Daniel F., 58 Moore St., Cambridge, Mass.
Dailey, J. Glanding, care Carpenter Steel Co., Reading, Pa.
Davis, Robert S., 1330 12th Ave., Altoona, Pa.
Downey, James E., 10 Taylor St., Holyoke, Mass.
Earle, Richard B., 403 Craigie Hall, Cambridge, Mass.
Gardunio, Jesur, Aguascalientes, Mexico.
Hale, William Jay, 42 Kirkland St., Cambridge, Mass.
Havens, Franke S., 9–13 Mercer St., New York, N. Y.
Jandrier, Edmond, Peace Dale, R. I.
Jerome, Alexander, 502 W. 45th St., New York City.
Kittredge, Harvey G., Dayton, Ohio.
Krebs, H. J., Wilmington, Del.
MacIntosh, Douglas, 208 E. 61st St., N. Y. City.
Sandford, William E., Kewanee, Ill.
Sanger, Charles R., Walker St., Cambridge, Mass.
Schaak, Milton F., 108 Penn St., Brooklyn, N. Y.
Williams, Simon E., Boylston Hall, Cambridge, Mass.

NAMES PROPOSED FOR ASSOCIATE MEMBERSHIP.

Craig, Archibald G., 5516 Graham Pl., Pittsburg, Pa.
Gearing, James H., 2111 Sidney St., Pittsburg, Pa.
Stifel, Walter H., 1319 Locust St., Allegheny, Pa.
Waters, Oliver G., 223 5th Ave., Pittsburg, Pa.
Wells, Allan, 213 South St. Clair St., Pittsburg, Pa.

MEMBERS ELECTED DECEMBER 30, 1899.

Adams, Walter Owen, 1776 Massachusetts Ave., No. Cambridge, Mass.
Ayer, Harold, Mass. Inst. Tech., Boston, Mass.
Baldwin, Charles E., 197 Auburn St., Cambridge, Mass.
Barnes, Bayard, Yale Univ., New Haven, Conn.
Beans, Hal T., Univ. of Nebr., Lincoln, Nebr.
Boggs, Gilbert H., 603 S. 42nd St., Philadelphia.
Boltwood, Bertram B., Sheffield Scientific School, New Haven, Conn.
Breer, Louis B., Builders Iron Foundry, Providence, R. I.
Button, Ok, Box 233, Trenton, Mich.
Chase, March F., Mineral Point Zinc Co., Mineral Point, Wis.
Cluff, C. B., Lowell Textile School, Lowell, Mass.
Croftan, Alfred C., Vandevort Block, Pasadena, Cal.
Cross, Walter Martin, 12th and Troost Sts., Kansas City, Mo.
Denham, Henry H., 146 N. Pearl St., Buffalo, N. Y.
Doolittle, R. E., Mich. State Dairy and Food Com., Lansing, Mich.
Dustin, Guy K., 51 Prospect St., New Haven, Conn.
Gerlach, Oscar, Mich. Cement Co., Coldwater, Mich.
Green, Erik H., 112 Newbury St., Boston, Mass.
Grosse, S. P., 180 6th Ave., Brooklyn, N. Y.
Hamilton, Louis P., 3417 Hamilton St., Philadelphia.
Hopkins, Arthur J., Amherst, Mass.
Jackson, Florence, Wellesley College, Wellesley, Mass.
Johnson, Treat B., 141 College St., New Haven, Conn.
Knapp, Rudolf E., Parke, Davis & Co., Detroit, Mich.
Lichtenstein, Alfred F., 134 Amity St., Brooklyn, N. Y.
Locke, James, Sheffield Chem. Lab., New Haven, Conn.
Loew, Oscar, Dept. of Agr., Washington, D. C.
Manteuffel, Adolf, Somerset Chem. Co., Bound Brook, N. J.
McFarland, B. W., 278 Canner St., New Haven, Conn.
Meyer, Gustave M., 59 E. 77th St., New York City.
Mixter, Wm. E., New Haven, Conn.
Moore, F. J., Mass. Inst. Tech., Boston, Mass.
Munson, L. S., Dept. of Agr., Washington, D.C.
Newton, Elmer S., 3018 Cambridge Pl., Washington, D. C.
Norman, George M., Ill. Steel Co., South Works, Chicago.
Parker, C. Leroy, Patent Office, Washington, D. C.
Peet, B. W., Ypsilanti, Mich.
Pemberton, Ralph, 1947 Locust St., Philadelphia.
Phalen, Wm. C., School of Mines, Socorro, N. M.
Phelps, Isaac King, Kent Chem. Lab., New Haven, Conn.
Platt, Elbert S., Waterford, N. Y.
Post, Frank I., 243 E. 76th St., Chicago.

Schoonmaker, Harry, 124 S. Main St., Los Angeles, Cal.
Skinner, Hervey J., 15 Chestnut St., Wakefield, Mass.
Stead, John E., 11 Queen's Terrace, Middlesbrough, England.
Sullivan, Eugene C., 331 Packard St., Ann Arbor, Mich.
Tucker, Charles W., 8 Grover St., Lynn, Mass.
Voorhees, Gerald E., Berwick, Pa.
Wachter, Leonard M., 45 James St., Green Island, N. Y.
Wheeler, Henry L., Sheffield Chem. Lab., New Haven, Conn.
Worstall, Robert A., Purdue Univ., Lafayette, Ind.

ASSOCIATES ELECTED DECEMBER 30, 1899.

Boroschek, Leopold, 149 E. 56th St., N. Y. City.
Clark, Edwin H., 17 Hillhouse Ave., New Haven, Conn.
Gillet, Ransom H., Pafraets Dael Club, Troy, N. Y.
Goodenough, Robert J., 18 7th Ave., Brooklyn, N. Y.
McCrudden, Francis H., 134 Castle St., Boston, Mass.
Merriam, Henry F., Summit, N. J.
Mihalovitch, Sidney F., 829 Hutchins Ave., Avondale, Cincinnati, O.
Olshausen, Bruno, Stanford Univ., Cal.
Rising, Herbert Robinson, 101 Wall St., New Haven, Conn.
Shilstone, Herbert M., 114 Pearl St., N. Y. City.
Sullivan, Robert Barry, 111 Grove St., New Haven, Conn.
Swenarten, W. Hastings, 169 Union St., Montclair, N. J.
Victor, Carl Louis, 101 Wall St., New Haven, Conn.
Webb, Ernest H., 1256 Massachusetts Ave., Cambridge, Mass.

CHANGES OF ADDRESS.

Blair, A. W., Expt. Sta., Lake City, Fla.
Cushman, Allerton S., Bryn Mawr College, Bryn Mawr, Pa.
Davis, W. W., care Va. Iron, Coal, and Coke Co., Bristol, Tenn.
Goldstein, Harris, 228 Henry St., N. Y. City.
James, J. H., Sault Ste. Marie, Ont.
Lorenz, H. W., Box 4028, Philadelphia, Pa.
Smith, E. A., Republic, Wash.
Wesson, David, care Southern Cotton Oil Co., Savannah, Ga.

ADDRESS WANTED.

Schoen, Joseph, formerly of 3602 Lake Ave., Chicago, Ill.
Wood, J. R., formerly of 439-441 Green St., Philadelphia, Pa.

MEETINGS OF THE SECTIONS.

WASHINGTON SECTION.

The regular meeting was held October 12, 1899.

The first paper was read by Mr. J. K. Haywood and was entitled "The Determination of Glycogen," by J. K. Haywood and W. D. Bigelow.

The authors proved that methods for the estimation of glycogen, which depend on its direct inversion into dextrose, are unreliable and have modified the method of Brücke so as to make it accurate and fairly rapid.

The second paper was read by Dr. F. K. Cameron and was entitled "A Method for Estimating Black Alkali in Soils."

The method enables the determination of the degree of hydrolization of the sodium carbonate in soils and soil crusts containing this compound. It was shown that an accurate determination of the amount of sodium carbonate could not be made by titrating directly with a standard acid, two reactions taking place with the formation of the acid carbonate in varying quantities and furthermore the probable existence of acid carbonate in the soil adds to the difficulty of such a determination. It was shown that acid potassium sulphate is free from these objections, the reaction taking place with quantitative exactness according to this equation:

$$Na_2CO_3 + HKSO_4 = NaHCO_3 + NaKSO_4$$

both substances indicated in the right-hand member of the equation being natural. It should be borne in mind that acid sodium carbonate although a neutral substance towards indicators, quite rapidly and readily inverts with the formation of the alkaline normal carbonate, so that a reasonable degree of speed must be used in making the titrations.

Details of the practical application of the method with examples from practice, were given, and it was shown that in ordinary practice the method was easily capable of an accuracy indicated by a probable error of less than 0.02 per cent.

The last paper was read by Dr. H. W. Wiley, and was entitled "The Fifteenth Annual Meeting of the Association of Official Agricultural Chemists, at San Francisco, July 5–7, 1899."

Mr. Tassin exhibited a specimen of calcium chloride which he

had obtained from a muck soil found in Utah. The salt occurs as an incrustation between Salt Lake City and Salt Lake.

Dr. Bolton exhibited a bibliography of thallium compiled by Miss Martha Dunn and recently published by the Smithsonian Institute. He called attention to the work done in Paris by Jules Garcon, who has published a bibliography of the "Chemical Technology of Textile Fibers," and a pamphlet entitled "Resources of Bibliography of Chemistry." The latter consists of a list of chemical bibliographies.

The regular meeting was held on November 9, 1899.

The first paper of the evening was read by Dr. H. Carrington Bolton and was entitled "Reminiscences of Bunsen and the Heidelberg Laboratory, 1863-65."

The speaker related anecdotes of Bunsen, and events that occurred in the Heidelberg Laboratory during the third semester which he spent there. Contemporary with him were the following Americans:

Eli W. Blake, afterwards professor of physics, Brown University, deceased; Owen W. Root, afterwards professor of chemistry, at Hamilton College, N. Y., deceased; Charles Wolf, of Cincinnati, deceased; Frank Slingluff, of Baltimore; Harry McBurney, of Boston; Lyman Nichols, of Boston; Arnold Hague, of the U. S. Geological Survey.

The second paper of the evening was read by Dr. H. Carrington Bolton and was entitled "Chapters on the History of the Thermometer; I.—The Open Air Thermoscope of Galileo."

The primitive form of the thermometer was invented about the year 1595 by Galileo; this is proved by extant letters addressed to him by his pupil and friend Sagredo. The instrument was an open air thermoscope of the inverted type, and was early applied to meteorological observations, to testing the temperature of fever patients, and to noting temperature of freezing-mixtures.

The very common statement that the thermometer was the invention of C. Drebbel, of Holland, has no basis of fact, as shown by his own publications, copies of which were exhibited by the speaker.

The third paper was read by Dr. F. W. Clarke and was entitled "The Action of Ammonium Chloride upon Certain Silicates," by F. W. Clarke and George Steiger.

The authors described a series of experiments in which various silicates were heated in a sealed tube to 350° C. with dry ammonium chloride. After leaching out the contents of the tube with water it was found that alkalies were removed as chlorides and replaced by ammonia. Analcite and leucite are thus transformed into an ammonium leucite:

$$NH_4Al.Si_2O_6,$$

which is perfectly stable at 300° and only begins to decompose when heated in the open air to 350°.

Some eight other silicates were given preliminary study and the reaction was found to be fairly general. The product from natrolite contained 8.3 per cent. of ammonia and other zeolites took up from 4 to 6 per cent. The investigations are to be continued.

The fourth paper was read by Dr. F. K. Cameron and was entitled "Hydrochloric Acid and Aqueous Phenol," by F. K. Cameron and J. A. Emory.

The authors determined the freezing-point curve for hydrochloric acid solutions, saturated with respect to phenol. Each independently determined the concentrations of the various solutions and their freezing-points for intercomparison. The curve was found to be a straight line, parallel to the curve for water and hydrochloric acid alone, from which it would seem that the solubility of phenol is practically constant through the range of temperature involved, and the lowering of the freezing-point of the solvent is a purely additive effect of the two solutes.

The fifth paper was read by Dr. F. K. Cameron and was entitled "The System Water, Hydrochloric Acid, and Phenol," by F. K. Cameron and W. H. Krug.

On lowering the temperature of the system, solid phenol separates. But if the initial mass of water be relatively large its concentration with respect to hydrochloric acid is practically unaffected while the solid phenol is separating and consequently the temperature of the phenol remains very constant. The freezing-point curve for phenol in contact with aqueous solutions of

hydrochloric acid of various concentrations, was determined. Its practical value for a rapid determination of the approximate strength of hydrochloric acid solutions was indicated.

WILLIAM H. KRUG, *Secretary.*

CHICAGO SECTION.

The November meeting of the Chicago Section was held at the Technical Club, November 24, 1899.

After the usual dinner, Prof. Julius Stieglitz, of the University of Chicago, gave a very interesting paper on the "Theory of Ionization in Analytical Chemistry."

He showed the value of the theory in explaining analytical reactions, thus adding to the scientific side of purely analytical chemistry. His remarks were illustrated with many experiments.

The thirty-first meeting of the Chicago Section was held at the Technical Club, December 13, 1899.

The following program was presented:

"An Apparatus for the Distillation of Ammonia with Steam," by Edward Gudeman.

"Notes on the Determination of Arsenic in Antimonial Lead," by Gustav Thurnauer.

"On the Action of Acyl Chlorides on the Disubstituted Ureas," by F. B. Dains.

These officers were elected for the year 1900: *President*, W. R. Smith; *Vice-President*, Geo. H. Ellis; *Treasurer*, C. W. Patterson; *Secretary*, F. B. Dains; *Executive Committee*, The President, the Secretary, Wm. Hoskins; *Member of the Council*, E. Gudeman.

F. B. DAINS, *Secretary.*

NORTH EASTERN SECTION.

The regular monthly meeting of the section was held in Boston on Wednesday evening, November 22. President A. D. Little called the meeting to order, 68 members being present. After the secretary's minutes were read and approved, the election of three members to represent the section in the council was held. The members elected were H. P. Talbot, L. P. Kinnicutt, and T. W. Richards.

Fred. L. Dunlap, of Worcester, presented a paper on "Cata-

lytic Action, with Special Reference to Its Application to the Manufacture of Sulphuric Acid." The second paper was by Walter L. Jennings, of Worcester, on "The Constitution of Rosaniline Dye Stuffs." At 10.30 the meeting adjourned.

The December meeting of the section was held in Boston on December 16, President Little in the chair, and 52 members present. After transacting the regular business of the section, Mr. A. D. Little presented a paper on "Viscose (cellulose sulphocarbonate) and Its Applications."

Mr. Little gave a review of the chemistry of cellulose, explained the method of preparation of viscose, and described some of its many applications, illustrating the paper by experiments and samples. After a discussion of the paper the section adjourned.

W. H. WALKER, *Secretary.*

Issued with February Number, 1900.

Proceedings.

MINUTES OF THE TWENTIETH GENERAL MEETING OF THE AMERICAN CHEMICAL SOCIETY.

The meeting was called to order at 9.15 A.M., Wednesday, December 27, 1899, in the Kent Chemical Laboratory, Yale University, New Haven, Conn., with President Edward W. Morley in the chair. Professor S. W. Johnson, of Yale University, was introduced and in a brief address extended a cordial welcome to the visiting chemists. President Morley responded in behalf of the Society.

The minutes of the previous meeting were approved as recorded in the secretary's book.

Papers were then read and discussed as follows: "The Action of Ammonium Chloride upon Certain Silicates," by F. W. Clarke and George Steiger; read by Professor Clarke. The paper was discussed by Messrs. Johnson and Clarke.

"The Specific Gravity of Copperas Solutions Containing Free Sulphuric Acid," by Edward Hart.

"The Allotropic Forms of Selenium," by A. P. Saunders. Discussed by Messrs. Dennis and Saunders.

"Synthesis of 2-3,3-Trimethylcyclopentanone," by W. A. Noyes; read by Edgar F. Smith.

"The Action of Unsymmetrical Phenyl-hydrazines on Chlorquinones," by Wm. McPherson; discussed by Messrs. Bogert, McPherson, and Freer.

A motion to appoint a representative from the American Chemical Society to act together with representatives from other organizations, in case it should be found desirable, to constitute a committee to consider the claims of chemistry in courses of education was, upon motion of Professor Atwater, referred to the council with power.

A paper by L. P. Kinnicutt and George R. Sanford on "The Iodometric Determination of Small Quantities of Carbon Monoxide," was read by Dr. Kinnicutt.

W. O. Atwater then presented a paper on "The Conservation of Energy in the Living Organism," and in connection with the paper explained the respiration calorimeter used in investigations upon the subject at Wesleyan University, Middletown, Conn.

After some announcements the morning session was adjourned.

WEDNESDAY AFTERNOON, DECEMBER 27, 1899.

A visit was made to Middletown, under the leadership of Professor W. O. Atwater, for the purpose of inspecting the laboratories and buildings of Wesleyan University, and witnessing the method of conducting investigations with the respiration calorimeter.

Before returning to New Haven, the visiting chemists enjoyed the hospitality of Professor Atwater and his family at his home where light refreshments were served.

WEDNESDAY EVENING, DECEMBER 27, 1899.

The address of the retiring president, Edward W. Morley, was delivered in Osborn Hall, at 8 P.M.: Subject, "Are New Processes Needed for the Determination of the Atomic Weight of Oxygen?"

After the president's address the chemists enjoyed a "smoker" at the New Tontine Hotel where Professor Wm. H. Brewer entertained them with some reminiscences of old chemists.

THURSDAY MORNING, DECEMBER 28, 1899.

The session was called to order in the Sheffield Chemical Laboratory, at 9.15 A.M. The reports of the secretary and the editor were read and ordered placed on file, as was also the report of the Committee on Papers and Publications.

The reports of the acting librarian and of the Finance Committee were read and referred to the Council. F. W. Clarke then presented the report of the Standing Committee on Atomic Weights and the report of the International Committee on Atomic Weights. The former was referred to the Committee on Papers and Publications and, on motion of Dr. McMurtrie, the report of the International Committee on Atomic Weights

was adopted, the president was authorized to appoint the necessary committee, and the other officers were empowered to carry out the recommendations of the report.

The report of the treasurer was read and placed on file.

A communication was received from E. E. Ewell, chairman of the Committee on Standards for Instruments of Measure, in which certain resolutions were presented to the Society. On motion of Dr. Talbot the communication and resolutions were referred to the Committee on Standards for Instruments of Measure for consideration and report to the council of the Society, which was requested to take action in the matter, and the Committee on Standards for Instruments of Measure was empowered to increase its number for the purpose of considering this subject.

Dr. McMurtrie made an announcement regarding the Fourth International Congress of Applied Chemistry which is to be held in Paris during the coming summer.

The results of the balloting, in the annual election for councilors and president, were announced by President Morley as follows: Councilors at large, elected to serve for three years, beginning January 1, 1900, F. W. Clarke, F. P. Venable, Chas. F. Mabery, and S. P. Sadtler; President of the Society for the year 1900, Wm. McMurtrie. Dr. McMurtrie, the president-elect, was then introduced by President Morley and made a few remarks in appreciation of the honor conferred upon him.

The following papers were presented: "A Demonstration of the Properties of the Isomeric Form of Potassium Ferricyanide," by James Locke; "Bacterial Treatment of Sewage in England," by L. P. Kinnicutt; "Preparation of Samples for Analysis," by S. W. Johnson; "What is Plant Food?" by H. W. Wiley.

The report of the Committee on Patent and Related Legislation was received and placed on file.

On motion of H. W. Wiley, the thanks of the Society were extended to:

The faculty and corporation of Yale University, the officers in charge of the Connecticut Agricultural Experiment Station, the Local Committee of Arrangements for the Meeting, Professor Wm. H. Brewer, Professor W. O. Atwater, the New Haven Colony Historical Society, the governors of the Graduates' Club,

the citizens of New Haven, and the trustees of the Chemists' Club of New York, for hospitalities and courtesies shown to the visiting chemists and for their untiring and successful efforts to make the Twentieth General Meeting of the American Chemical Society a most enjoyable and memorable occasion.

The Society then adjourned to meet at the New Tontine Hotel at 7 P.M.

THURSDAY AFTERNOON, DECEMBER 28, 1899.

The council met in the Kent Chemical Laboratory at 2 P.M.

The afternoon was spent by the other members of the Society in visiting the buildings, laboratories, and collections of Yale University, etc.

THURSDAY EVENING, DECEMBER 28, 1899.

The members of the Society enjoyed a subscription dinner at the New Tontine Hotel. The retiring president, Edward W. Morley, presided and H. W. Wiley acted as toast-master.

Toasts were responded to as follows:

"The Retiring President"—Edward W. Morley. "The Incoming President"—Wm. McMurtrie. "Agricultural Chemists"—S. W. Johnson. "Old Bachelorhood"—Chas. B. Dudley. "Lady Members of the Society"—Charlotte A. Bragg. "The New York Section"—Chas. F. McKenna. "The Rhode Island Section"—E. D. Pearce. "The Northeastern Section"—L. P. Kinnicutt. "The Washington Section"—H. N. Stokes. "The Philadelphia Section"—Edgar F. Smith. "The Michigan Section"—Paul C. Freer. "The Lehigh Valley Section"—Edward Hart. "The Local Committee"—H. L. Wells.

The Twentieth General Meeting of the American Chemical Society then adjourned *sine die*.

ALBERT C. HALE, *Secretary*.

ANNUAL REPORT OF THE SECRETARY OF THE AMERICAN CHEMICAL SOCIETY, DECEMBER 26, 1899.

The past year of the Society has been one of continued progress and development. The membership has increased from 1415 to 1569; two new sections have been formed, one in Philadelphia, the other in Michigan with headquarters at Ann Arbor; a fund has been permanently invested to cover all

amounts that have ever been received for life membership; several committees have completed their work and have been discharged, and to new committees new work has been assigned; the Journal has been filled with valuable papers, and the demand upon its columns has been so great that its regular issue has been enlarged to 100 pages, and for the last three numbers a special edition of 150 pages has been authorized in order to make room for material that had accumulated in the hands of the Committee on Papers and Publications. The papers that have appeared in the Journal have been quite fully abstracted by other scientific periodicals both at home and abroad, and some of them have been reproduced entire. The address of the retiring president of the Society last year, Professor Charles E. Munroe, appeared in the journal *Science*, and the information therein contained was considered of such value that permission of its author was obtained to print it entire in the report of the Department of Agriculture of Ontario, Canada.

The changes in membership are as follows:

December 26, 1898, members	1298		
Associates	107		
Honorary	10		
Total		1415	
New members qualified during year		219	
			1634
Resigned	19		
Died	7		
Dropped from roll	39		
			65
Dec. 26, 1899, members, 1430; associates, 131; honorary, 8; total			1569

The membership of the various local sections is:

Rhode Island Section	27
Cincinnati Section	67
New York Section	361
Washington Section	105
Lehigh Valley Section	19
Chicago Section	52
Nebraska Section	16
North Carolina Section	22
Columbus Section	22
North Eastern Section	232
Philadelphia Section	97
Michigan Section	35
Total	1055
Members not enrolled in any section	514
Total membership, December 26, 1899	1569
Per cent. of membership in local sections	67+
" " " " not in local sections	33—

A few additional facts regarding the local sections may be of interest. *The Rhode Island Section*, territory the State of Rhode Island, headquarters, Providence, has held 8 meetings during the year at which papers were read and discussed. *Cincinnati Section*, territory a 75-mile radius from Cincinnati, except as specified, headquarters, Cincinnati, 8 meetings with papers, net gain of membership during the year, 25. *New York Section*, territory a 50-mile radius from New York City Hall, headquarters, New York City, 10 meetings, 45 papers presented by 35 different authors, net gain in membership during the year, 64. *Washington Section*, territory, District of Columbia, State of Maryland and the State of Virginia east of the 79th meridian, headquarters, Washington, 8 regular meetings, and three special, net gain in membership, 4. This section has also 30 local associates. *Lehigh Valley Section*, territory, that portion of the Lehigh Valley included between Easton and Mauch Chunk, headquarters, Lafayette College, Easton, and Lehigh University, South Bethlehem, 2 meetings, no change in membership. *Chicago Section*, territory, Chicago and suburbs, headquarters, Chicago, 7 meetings, gain in membership, 2. *Nebraska Section*, territory, the State of Nebraska, headquarters, Lincoln, 4 meetings, no change in membership. *North Carolina Section*, territory, the State of North Carolina, headquarters, Raleigh, 2 meetings, gain in membership, 7. *Columbus Section*, territory, a 75-mile radius from Columbus, except as specified, headquarters, Columbus, monthly meetings, gain in membership, 8. *North Eastern Section*, territory, the States of Maine, New Hampshire, Vermont, and Massachusetts, headquarters, Boston, Mass., 8 meetings, gain in membership, 32. *Philadelphia Section*, organized May 17, 1899, territory, a 60-mile radius from Philadelphia, except as specified, headquarters, Philadelphia, 2 meetings. *Michigan Section*, chartered December 7, 1899, territory, the State of Michigan, headquarters, the University of Michigan, Ann Arbor.

The present constitution has come into full operation during the past year. The council, as now constituted, will number 45 during the year 1900, composed of four members *ex-officio*, 12 past presidents, 17 representatives of Local Sections, and 12

councilors at large. The number of directors is 7, all of whom are members of the council.

During the past year the Committee on Papers and Publications has been enlarged to include representatives from the various departments of chemistry, making the total membership of the committee 10, the editor being chairman.

The final report of the Committee on Coal Analysis was presented at the Columbus Meeting, last summer, and the committee was discharged. This report has been sent to the Journal for publication.

The Committee on Duty-Free Importations, having already presented a highly satisfactory report, was also discharged at the Columbus meeting.

A Committee on Patent and Related Legislation, consisting of 25 members, with Charles E. Munroe as chairman, was appointed early in the year.

An International Committee on Atomic Weights has been appointed during the year to confer with similar committees from other national organizations in order to secure cooperation on the subject entrusted to the committee. The chairman of this committee is F. W. Clarke, whose annual report upon atomic weights has appeared regularly in the columns of the Journal during the past few years.

The only new life membership during the year is that of Charles E. Munroe, of Washington. We are encouraged, however, to expect others soon. The life membership fund now established in accordance with the constitution is set aside as a permanent investment, and it is to be hoped that this fund will rapidly accumulate in the near future.

The library of the Society is substantially housed on shelves in the rooms of the Chemists' Club, 108 W. 55th St., New York City. M. T. Bogert resigned as librarian during the year and A. A. Breneman was appointed acting librarian. Professor Breneman has done a great deal of work in putting the library in condition for use of the members, and his efforts have been highly appreciated by those who understand what has been accomplished. It is to be hoped that the society will soon be able to expend upon the library whatever is necessary to keep it in good condition, and to provide for its reasonable development.

Meanwhile, it is of interest to know that the trustees of the Chemists' Club in New York have voted to defray the expenses of a card catalogue for the library.

At the Columbus Meeting committees were appointed to draw up memorials with reference to the two honorary members of the society, Sir Edward Frankland and Professor Robert Wilhelm Eberhard Bunsen, who have died during the past year. The committee on Sir Edward Frankland reports at the present meeting, but the committee on the Bunsen memorial has deferred its report in order to obtain fuller information in regard to American chemists who have been pupils of Professor Bunsen. It is hoped that at least all members of the Society who have ever been his pupils, or have had any personal acquaintance with Professor Bunsen will forward without delay to the secretary of the Society any personal reminiscences and other matters of interest, including the names and addresses of any American chemists who have ever been in any way associated with Professor Bunsen.

A message of congratulation was sent by the president and secretary of the Society to Professor J. H. van't Hoff, one of our honorary members, upon the occasion of the celebration in Rotterdam on December 22, of the twenty-fifth anniversary of Professor van't Hoff's receiving the doctor's degree.

The record of the Society during the past decade, its present flourishing condition, and the outlook for the future, are cause for congratulation to every one who has at heart its welfare and its usefulness. Ten years ago its membership was but 205; to-day it is 1569, and we believe its influence and successful work has increased with even greater rapidity. Ever since its reorganization some ten or twelve years ago its growth has been rapid and vigorous, and under its wholesome and inspiring influence the chemists of America are, year by year, brought closer together in fraternal interest.

Respectfully,

ALBERT C. HALE, *Secretary.*

REPORT OF THE TREASURER FROM MAY 1 TO DECEMBER 21, 1899.

NEW YORK, DECEMBER 21, 1899.

RECEIPTS.

Balance from treasurer, Dr. McKenna		$ 891 16
Received for dues from secretary		1175 00
Subscriptions		215 87
Received for back number		50
Received for advertising		729 87
Received for interest, Knickerbocker Trust Co		1 35
Received for loan on special investment bond		1200 00
Received for interest on special investment bond		35 00
Received for interest on life-membership fund		36 60
		$4285 35

DISBURSEMENTS.

For publication of Journal, 7 issues	$1933 46	
For reprinting January Journal	133 69	
For author's reprints	133 42	
For expenses, editor's office	27 54	
For expenses, secretary's office (clerical)	403 83	
For expenses, secretary's office (current)	197 85	
For expenses, secretary's office (general)	426 15	
For expenses, secretary's office, collection of dues	117 50	
For expenses, library shelves	13 20	
For expenses, treasurer's office	22 14	
For expenses, New Haven Meeting	11 00	
For expenses, general	42 49	
For expenses, rebate on subscription	4 00	
For advertising	1 76	
For emigrant savings bank	36 60	
For rebate to local sections as follows:		
Cincinnati	$ 88 33	
Columbus	30 00	
New York	200 00	
North Eastern	30 00	
Philadelphia	100 00	
	$ 448 33	
Balance in Knickerbocker Trust Co., Dec. 21, 1899	332 39	
		$4285 35
Unpaid bills, editor's salary	$250 00	
Unpaid bills, treasurer's services	150 00	
Total	$400 00	

A. P. HALLOCK, *Treasurer.*

Accounts examined and found correct, E. & O. E.

WM. MCMURTRIE,
J. H. WAINWRIGHT,
ELWYN WALLER,
Finance Committee.

ASSETS.

Special investment fund ($2000, 2½ per cent. N. Y. gold bond, due 1915)		$2097 50
Life membership fund ($1000, 3½ per cent. N. Y. gold bond, due 1925)	$1080 38	
Emigrant savings bank	219 62	
		1300 00
Balance in Knickerbocker Trust Co		332 39
Cash in secretary's hands		41 39
Cash in librarian's hands		45 39
Dues unpaid, 1898		235 00
Dues unpaid, 1899		740 00
Uncollected accounts, editor's office		1225 50
		$6017 17

LIABILITIES.

Loan on special investment bond	$1200 00	
Editor's salary	250 00	
Treasurer's services	150 00	
Life members	1300 00	
Balance on actual assets	3117 17	
		$6017 17

ACTING LIBRARIAN'S REPORT FOR 1899.

NEW YORK, December 23, 1899.

To the Council of the American Chemical Society:

GENTLEMEN—The library of the Society has been in my charge, as acting librarian, since May 16th of the present year. It is now arranged in the library room of the Chemists' Club. The collection is largely made up of chemical periodicals, in sets more or less complete, but largely unbound. To put it into shape for convenient use it is imperative that much binding should be done and that the incomplete sets should be filled up. A catalogue should also be made. No money has been available for these purposes, and I hereby renew my previous suggestion to the council that an appropriation of $200 be made for binding, and in addition recommend that the sum of $500 be applied during the coming year to the purchase of missing numbers of periodicals already represented in the library.

By the action of the trustees of the Chemists' Club, recently taken, the expense of preparing a card catalogue will be assumed by the club. A printed catalogue for the use of members at a distance should be provided for by the Society. I would suggest that the council consider, as soon as possible, the question of de-

fining the plan upon which the library shall be built up. At present it has a large quantity of material which is of very remote interest to chemists, and the care of this adds materially to time and expense required in the work of the library. It seems to me that this library should be a chemical library first of all. With the means and influence of the American Chemical Society it may be made one of the best chemical libraries in the country—perhaps in time the best—but it can only fulfil its purpose by means of some reasonable system of limitation or exclusion which shall avoid the accumulation of other matter, which general libraries can much better supply. As the library is likely always to be located in one of the large cities where general library facilities are abundant, the propriety of making it strictly a library for chemists is the more apparent.

The financial affairs of the library have been reported to the treasurer of the Society, and will appear in his annual statement.

Very respectfully,

A. A. BRENEMAN, *Acting Librarian.*

REPORT OF THE EDITOR FOR 1899.

To the Members of the American Chemical Society:

It is surely not necessary to announce to the world that we have in the space of seven or eight years grown into a vigorous, lusty Society. This meeting especially offers evidence of the union of the best American chemists in our effort.

It is a matter of great rejoicing to those of us who have been pulling in the traces so long, doing the best we could with material sometimes unpromising, that the best of the profession have one by one come to our aid and that we are rapidly approaching the goal.

When I became editor in 1893 there were two papers ready for publication and five numbers of the Journal in arrears. This had come to pass through the process of reorganization. Since that time progress has been steady and of late years rapid.

At the Columbus Meeting the council took what is generally considered a great step in advance in increasing the size of the Publication Committee. This increase in numbers has several advantages.

First. Most papers may be published at once after reference to only one member particularly versed in the portion of chemistry covered by the paper.

Second. The number of papers referred to each member is decreased, decreasing the individual burden and increasing the chance of careful consideration and wise, helpful suggestion.

The committee intends to use material of value from every available source. The effort will be made to weed out redundancies and to pay some attention to the manner of statement as well as to the matter contained. It is our intention to offer only helpful criticism to the authors of papers with a desire for their cooperation in making the pages of the Journal a proper reflection of American progress in chemistry.

Two factors seem to be needed in this work: First, cordial cooperation from contributors to the Journal; and second, proper financial support. Both of these seem now assured.

An index to the first twenty volumes has been prepared and will shortly be published.

At this meeting of the council the editor will propose that a committee be constituted to investigate the question of what is the best book-paper for our use and to make recommendations concerning it.

In conclusion it may not be uninteresting to summarize here what has been done since I became editor. In 1893 the Journal contained 98 papers, with a total of 720 pages. In 1894 there were 16 pages of proceedings and 152 papers, covering 891 pages, a total of 907 pages. In 1895 there were 72 pages of proceedings and 145 papers, covering 1010 pages, a total of 1082 pages. In 1896 we printed 126 pages of proceedings and 142 papers, covering 1124 pages, a total of 1250 pages. In 1897 we printed, for the first time, a Review of American Chemical Research, 210 pages, proceedings 66 pages, and 124 papers, covering 966 pages, a total of 1242 pages. In 1898 there were 182 pages of review, 106 pages of proceedings, and 126 papers, covering 999 pages, a total of 1289 pages. This year we have printed 157 pages of review, 106 pages of proceedings, and 135 papers, covering 1187 pages, a total of 1450 pages. During this period the edition has been increased from 750 to 2000 copies. Of the November, 1899, issue, 1679 copies were sent out. With the steady

increase of membership, which still keeps up, we shall probably have to still further increase the edition for 1901.

EDWARD HART, *Editor.*

REPORT OF THE COMMITTEE ON MEMBERSHIP.

To the Council of the American Chemical Society:

GENTLEMEN—Your Committee on Membership desires to report one of the most successful years in the history of the Society in the acquisition of members. The total number of nominations passed upon by the committee is 256, of which 226 are active, and 30 associate members. While two special influences may be noted, namely, the formation of a Michigan Section and the meeting now in progress in New Haven, it will nevertheless be seen from the following statement how natural, steady, and healthful has been our growth.

January, 46; February, 21; March, 30; April, 11; May, 20; June, 8; July, 4; August, 7; September, 11; October, 23; November, 34; December, 41.

While congratulating the Society on this prosperity, your committee feels that our efforts must in no way be relaxed as with a still larger membership, a wider scope can be given the Society and a greater usefulness to the Journal.

It has been suggested by several of the most active members at work in securing the interest of students in the work of the Society that the interests of all would be better subserved if students elected to associate membership should be advanced to full membership on the simple forwarding of their credentials of graduation. This would obviate the necessity of a new form being made out and passed through the routine of the committee.

Respectfully submitted,

CHARLES A. DOREMUS, *Chairman,*
A. A. BRENEMAN,
PETER T. AUSTEN.

REPORT OF THE INTERNATIONAL COMMITTEE ON ATOMIC WEIGHTS.

December 1, 1899.

To the American Chemical Society:

Your Committee on international action relative to a uniform system of atomic weights begs to submit the following report of progress:

It has communicated with several foreign organizations: namely, the German, English, and Belgian chemical societies. At our request the English society has appointed a committee upon the subject; and in the chemical section of the British Association, at its recent meeting, the proposition for international action was somewhat discussed, a letter from the chairman of this committee being the basis for discussion. The attitude of the English organizations towards the plan for an international conference, is altogether favorable; that of the other societies is not definitely stated. The Belgian society has formally adopted the table of atomic weights issued last year by the German committee, and several other local organizations in Europe have done the same thing.

In our conferences various questions have arisen as to nomenclature, standards and methods of stating results. On these subjects no present action is recommended, partly because of differences of opinion, and partly because final action could be of weight only when agreed to by all leading chemical societies. For us to act now would savor too much of forestalling the desired international decisions. Neither do we recommend the adoption of any specific tables of atomic weights, for three such tables, which are fairly in agreement, are now proposed; and a fourth table would only lead to confusion. The tables of the German committee, of Clarke, and of Richards are all more or less in use; and although the differences between them are minor, their reconciliation should be effected by the larger body of experts which will probably be formed.

The Congress of Chemists which will meet in Paris in July next, seems to afford the best opportunity for a general discussion of the subject; not only as to the values to be adopted, but also as to the best method for clearing up outstanding uncertainties in our constants. Your committee therefore offer the following recommendations:

First, that the officers of the above-mentioned Congress be requested to invite a joint meeting of all international committees upon atomic weights, to be held during the Congress in July, 1900, and under its auspices.

Second, that the joint committee so formed shall have power to add to its membership.

Third, that the American Chemical Society shall invite the cooperation of other organizations in the United States. The American Academy of Arts and Sciences has already appointed a committee, consisting of Professors T. W. Richards, Wolcott Gibbs, and Ira Remsen, a committee with which we should act in harmonious relations.

Very respectfully,

F. W. CLARKE, *Chairman.*
J. W. MALLET.
EDWARD W. MORLEY.
THEO. W. RICHARDS.
EDGAR F. SMITH.

REPORT OF COMMITTEE ON PRIESTLEY MEDAL.

WASHINGTON, D. C., December 16, 1899.

Dr. Edward W. Morley, President American Chemical Society:

SIR:—Your committee, to which was referred the consideration of the motion, "That on the twenty-fifth anniversary of the establishment of the Society, a medal be given to that chemist who, in the opinion of the council, has made the most valuable contribution to chemical knowledge during the current year, and further, that the medal be called the 'Priestley Medal'," begs to report that it deems it inadvisable for the society to found a medal from funds obtained from dues of members, since in its judgment medals and prize funds should be independently acquired for the specific purposes named by the donors.

Your committee recommends that some recognition be made of the twenty-fifth anniversary of the founding of the Society, which will occur on April 6, 1901, and it suggests that provision be made for a special memorial address, and that a statement of what the Society has accomplished to that date be published, and issued to all the chemists in America.

Respectfully submitted,

CHARLES E. MUNROE, *Chairman.*,
J. W. MALLET,
ALBERT B. PRESCOTT.
Committee.

BOARD OF DIRECTORS.

MINUTES OF THE MEETING OF THE BOARD OF DIRECTORS, DECEMBER 28, 1899.

At the close of the meeting of the council in the Kent Chemical Laboratory, New Haven, President Morley called the Board of Directors to order. There were present Messrs. Morley, Hale, Hallock, Dudley, and McMurtrie.

Upon motion duly seconded and carried, the directors authorized the appropriation of the funds recommended by the various motions approved by the council at the session just closed.

There being no further business, the board then adjourned.

ALBERT C. HALE, *Secretary*.

COUNCIL.

MINUTES OF THE COUNCIL OF THE AMERICAN CHEMICAL SOCIETY, DECEMBER 28, 1899.

The council was called to order at 2.10 P.M., in the Kent Chemical Laboratory, New Haven, Conn., President Edward W. Morley in the chair.

There were present Messrs. Morley, McMurtrie, Hale, Hart, Catlin, Wiley, Hillebrand, Johnson, Clarke, Marshall, Gooch, Smith, Sabin, Love, Hallock, Alden, Long, Munroe, Talbot, Dudley, Prescott, and Wells.

The minutes of the council, as recorded in the secretary's book up to date, were approved.

It was voted that all nominees for membership, up to the close of this meeting, be considered as acted upon by the council, and the secretary shall declare them elected whenever all the other requirements of the constitution, in regard to them as nominees, shall have been met.

Dr. Hart reported progress for the "Committee on Exchanges" and Dr. Dudley for the "Committee on Abstracts and Reviews."

A report was presented by the committee appointed to consider a plan for celebrating the twenty-fifth anniversary of the founding of the Society, by awarding a medal for the "most valuable contribution to chemical knowledge," etc. The committee reported adversely upon the question of the medal but recommended a plan for celebrating the twenty-fifth anniversary of the

Society. The report was accepted and its recommendations adopted.

It was voted that hereafter, at the annual meeting of the council, nominations shall be made for the ensuing year, to fill the various offices and committees, the incumbents and members of which are to be elected by the council, in accordance with the constitution.

Upon motion of Professor Clarke, the following was adopted :

Resolved, That the officers of the council for the coming year shall be nominated by ballot ; if for any office a nominee shall receive a majority of the votes cast, he shall be declared to be elected to said office ; in other cases, the names of the three nominees having the highest number of votes shall be referred to the council for further balloting.

It was voted that publication in the Journal of the Society, of any action of the council, shall be considered as sufficient notice to the councilors that such action has been taken.

It was voted that the next general meeting of the society shall be held on Monday and Tuesday, June 25 and 26, in connection with the meeting of Section C of the A. A. A. S.

The report of the Finance Committee was presented and the following recommendations were adopted :

1. At the general annual meeting, each officer shall submit a schedule comprising his estimated expenses, in detail, for the coming year.

2. After all such estimates shall have been submitted, the council shall prepare a budget of expenses and the directors shall, upon the recommendation of the council, apportion the funds of the Society, or so much thereof as may be necessary, in accordance therewith.

3. All officers of the Society, who shall in any manner collect or receive moneys from any source, shall transmit the same monthly to the treasurer with a statement of the source or sources from which such receipts are collected.

4. All disbursements on account of the Society shall be made only by the treasurer upon vouchers duly approved by the Finance Committee, after having been checked by the officer by whose account the disbursement is made ; and the treasurer shall, in keeping his accounts, charge every disbursement to

some one of the several appropriations made by the directors in accordance with the preceding recommendations.

The following recommendation of the Finance Committee was referred to the various local sections of the Society for the expression of opinion thereon: "In regard to the apportionment of the Society's funds for the benefit of local sections, the Finance Committee believe, and earnestly recommend, that the following system would be preferable to the one at present in force; *viz.*, that when the local membership of the section is below fifty (50) that section shall be entitled to draw annually an amount equivalent to one-third of the aggregate dues paid to the Society by its members. If the membership shall exceed 50 and be less than 200 the section shall be entitled to draw one-fourth; and if it shall reach a total of 200 the section shall be entitled to draw one-fifth."

The following suggestion was referred back to the Finance Committee after a number of the councilors had expressed themselves adversely in regard to it: In regard to the general manner of conducting the business of the Society the committee are strongly of the opinion that it would be extremely desirable and would result in a very decided economy to employ for that purpose a business manager at a reasonable salary; to turn over to him all the details connected with its administration comprising the actual keeping of all accounts, the details of correspondence, etc., etc., and to locate the Society's business at some central office.

The report of the Committee on Library Appropriations was received and placed on file, also the report and recommendations of the acting librarian.

On motion of Dr. McMurtrie it was voted that $400, or so much thereof as may be necessary, be and the same is hereby appropriated for the binding of unbound material in the library and the completion of sets, and that $100, or so much thereof as may be necessary, be and the same is hereby appropriated to pay for clerical services of the librarian.

On motion of Dr. Munroe it was voted "that it is the sense of the council that the phrase 'which shall be held in perpetuity to guarantee the future interests of such life members,' in Section 2, Article X, of the constitution, means that the income from

each life membership fee shall, during the life of the member who paid this fee, be turned into the treasury to be used in meeting the general expenses of the Society just as the annual dues of members are now used."

It was resolved that Dr. Marcus Benjamin and the editor be appointed a Committee on Portraits for the Journal. It was voted that a Committee on Paper to be used in the Journal, be appointed, consisting of three members, of which the editor shall be *ex-officio* chairman. (By subsequent vote of the Council this committee was increased to five, consisting of the following persons: Edward Hart, chairman, Henry Carmichael, A. D. Little, M. L. Griffin, and C. B. Dudley.)

It was voted that the editor be authorized to cause to be printed sample pages of the December issue, including the cover, the advertising pages, the annual table of contents, and one signature of reading matter, the whole to be used for advertising purposes.

The committee appointed to attend the Pure Food and Drug Congress held in Washington, D. C., January 8 to 20, reported that it had performed the duties assigned it and that nothing was accomplished by the Congress. The report was accepted and the committee discharged.

Upon motion by Dr. Wiley the thanks of the Society, through the council, were extended to the retiring president for the able direction of the affairs of the Society during the past year.

W. F. Hillebrand submitted the following amendments to the by-laws: Substitute for Section 17, "The Journal of the Society shall not be sent to members or associates until after the receipt of their dues for the current year.

"The secretary shall have the above printed on his annual notification that dues are payable, and shall call the attention of delinquent members to it at least once every three months."

Amend Section 20 by substituting for the first sentence the following: "The Secretary shall give written notice to the editor, immediately before the mailing of the first annual number of the Journal, of all persons in arrears, in order that the provisions of the by-laws regarding such cases may be carried into effect."

The Council then adjourned.

ALBERT C. HALE, *Secretary.*

The following named officers were elected by the Council January 30, 1900:

Secretary—Albert C. Hale.

Editor—Edward Hart.

Treasurer—Albert P. Hallock.

Librarian—E. G. Love.

Director—Charles F. Chandler.

Members of Committee on Membership—Charles A. Doremus, A. A. Breneman, Peter T. Austen.

Members of Finance Committee—Elwyn Waller, J. Howard Wainwright.

Members of Committee on Papers and Publications—Edward Hart, Editor, *Chairman*, H. N. Stokes, W. A. Noyes, H. P. Talbot, A. A. Noyes, H. W. Wiley, Wm. McMurtrie, W. F. Hillebrand, John H. Long, and Edgar F. Smith.

In view of the fact that the number of pages in the December issue of the Journal (because of the extent of the index and the Review of American Chemical Research) unavoidably exceeded the limit of 150 pages ordered by the council, the treasurer was authorized by council to pay for the entire issue at the rates prescribed in the contract.

A Committee on Paper to be used in the Journal, consisting of three members, was authorized at the New Haven meeting of the Council. On January 30, 1900, authority was given the president to increase the number of members of this committee to five.

The Council has directed that persons who as undergraduates have been elected associates shall be declared to be members upon graduation from the chemical course of any institution of recognized standing.

NAMES PROPOSED FOR MEMBERSHIP.

Armsby, Prof. H. P., State College, Pa.

Arnott, George W. Campbell, 27 William St., N. Y. City.

Bach, August, 537 Nelson St., Chicago, Ill.

Bullard, Frank D., 245 Bradbury Block, Los Angeles, Cal.

Douglas, William, Plantation Diamond, Demerara, British Guiana.

Goodell, Geo. A., 284 St. Nicholas Ave., N. Y. City.

Hamlin, Addison, 25 5th St., Bangor, Me.

Hulett, Geo. A., 706 S. Thayer St., Ann Arbor, Mich.

Mills, James E., Chapel Hill, N. C.

Mork, Harry S., 21 Wabeno St., Roxbury, Mass.
Norris, Robert Stewart, Santa Maria, Cal.
Remington, Joseph P., 1832 Pine St., Philadelphia, Pa.
Richards, Joseph, 1802 Catherine St., Philadelphia, Pa.
Richardson, William Derrick, 4803 Madison Ave., Chicago, Ill.
Ross, Herbert W., 1070 16th St., Oakland, Cal.
Syme, W. A., Raleigh, N. C.
Thorne, Ernest E. H., Bridgeton, Barbadoes, B. W. I.
Thurlow, Nathaniel, 55 New St., Newark, N. J.
Weld, Fred. C., Littleton, Mass.
Wolfe, J. V., Jr., Rochester, Mich.

NAMES PROPOSED FOR ASSOCIATE MEMBERSHIP.

Bates, Hugh H., 502 E. 3d St., Cincinnati, Ohio.
Berghausen, Oscar, 644 Crown St., Walnut Hills, Cincinnati, Ohio.
Black, Jesse A., Poly. Inst., Worcester, Mass.

NEW MEMBERS ELECTED JANUARY 30, 1900.

Archibald, Eben H., 109 Ellery St., Cambridge, Mass.
Ballard, J. Clarence, U. S. Expt. Station, Lafayette, Ind.
Behr, Gustave E., Jr., 1256 Massachusetts Ave., Cambridge, Mass.
Black, Otis F., 10 Avon St., Cambridge, Mass.
Bonnet, Frederic, Jr., 13 Mellen St., Cambridge, Mass.
Cohoe, Wallace P., 14 Boylston Hall, Cambridge, Mass.
Colhane, Daniel F., 58 Moore St., Cambridge, Mass.
Dailey, J. Glanding, care Carpenter Steel Co., Reading, Pa.
Davis, Robert S., 1330 12th Ave., Altoona, Pa.
Downey, James E., 10 Taylor St., Holyoke, Mass.
Earle, Richard B., 403 Craigie Hall, Cambridge, Mass.
Hale, William J., 42 Kirkland St., Cambridge, Mass.
Havens, Franke S., 9-13 Mercer St., N. Y. City.
Kittredge, Harvey G., Dayton, O.
Krebs, H. J., Wilmington, Del.
MacIntosh, Douglas, 208 E. 61st St., N. Y. City.
Sandford, Wm. E., Kewanee, Ill.
Sanger, Charles R., Chem. Lab., Harvard College, Cambridge, Mass.
Schaak, Milton F., 108 Penn St., Brooklyn, N. Y.
Williams, Simon E., Boylston Hall, Cambridge, Mass.

NEW MEMBERS ELECTED FEB. 13, 1900.

Alexander, Jerome, 502 W. 45th St., N. Y. City.
Jandrier, Edmond, Peace Dale, R. I.

ASSOCIATES ELECTED FEBRUARY 13, 1900.

Craig, Archibald G., 5516 Graham Place, Pittsburg, Pa.
Gearing, James H., 2111 Sidney St., Pittsburg, Pa.
Stifel, Walter H., 1319 Locust St., Allegheny, Pa.
Waters, Oliver G., 223 5th Ave., Pittsburg, Pa.
Wells, Allan, 213 S. St. Clair St., Pittsburg, Pa.

CHANGES OF ADDRESS.

Adgate, Matthew, care General Chem. Co., Syracuse Works, Syracuse, N. Y.
Anderson, Duncan, Jr., 104 8th St., Roanoke, Va.
Behr, Arno, Arlington Court, Pasadena, Cal.
Burwell, A. W., 208 Superior St., Cleveland, Ohio.
Cairns, Fred. I., Anaconda, Mont.
Davis, Wm. Walley, care Va. Iron, Coal and Coke Co., Bristol, Va.-Tenn.
Enequist, John, 556 Greene Ave., Brooklyn, N. Y.
Escher, Paul, care Acker Process Co., Niagara Falls, N. Y.
Field, Chas., 3d, 1747 Lawrence St., Denver, Col.
Fischer, Robert, 208 Stewart Ave., Ithaca, N. Y.
Fleck, Herman, Belleville, N. J.
Foster, John, Sheffield, Ala.
Given, Arthur, 11 Plympton St., Worcester, Mass.
Hartman, Wm. E., Kalamazoo Gas Works, Spring and Pitcher Sts., Kalamazoo, Mich.
Kelley, John H., care Tenn. Phosphate Co., Ridley, Maury Co., Tenn.
Kelly, F. G., Chapel Hill, N. C.
Lorenz, H. W. F., Univ. of Pa., Philadelphia, Pa.
Ludlow, Gabriel, Box 344, Wilmington, N. C.
Miller, F. W., Talladega, Ala.
Miller, Hugh L., 24 Broad St., Charleston, S. C.
du Pont, P. S., The Johnson Co., Lorain, Ohio.
Schoen, Joseph, care Standard Syrup Ref. Co., 12 S. Commercial St., St. Louis, Mo.
Simons, Frank D., "The Montrose Flats," 1115 9th St., Washington, D. C.
Small, Fritz H., care Graton & Knight Mfg. Co., Worcester, Mass.
Smith, Frederic J., Box 46, Elizabeth, N. J.
Thorburn, A. D., Room 200, 100 State St., Chicago, Ill.
Twitchell, E., Wyoming, Ohio.

ADDRESS WANTED.

Wolff, Frank A., Jr., formerly Columbia Univ., N. Y. City.

MEETINGS OF THE SECTIONS.

CINCINNATI SECTION.

The 72nd regular meeting was held on Friday, December 29, 1899, in the Auditorium of Hanna Hall, University of Cincinnati, with about 150 persons in attendance.

Dr. Alfred Springer presented the subject: "A Trip through the Yellowstone Park" beautifully illustrated by a great number of photographic lantern-slide views.

The meeting was then resumed in the Chemical Lecture Room, with 26 members present, and President Simonson in the chair. Dr. Thomas Evans made a preliminary report on ricinine. After the reading of the reports of officers for the past year, the election of officers for 1900 was held, resulting in the following ticket:

President, Thomas Evans; *Vice-presidents*, Hannah L. Wessling, Raymond M. Hughes; *Secretary*, Frank I. Shepherd; *Treasurer*, Henry B. Foote; *Executive Committee*, B. M. Pilhashy, Otto Dieckmann, Fred. Homburg; *Representative in the Council*, Alfred Springer (elected at the November meeting).

The following chairmen of standing committees were elected:

On Papers and Publications, Frank I. Shepherd; T. H. Norton and E. Twitchell, associate members; *On Didactic, Physical, and Inorganic Chemistry*, T. H. Norton; *On Organic Chemistry*, Thomas Evans; *On Analytical Chemistry*, Wm. Simonson; *On Medical, Physiological, and Biological Chemistry*, Wm. H. Crane; *On Technical and Pharmaceutical Chemistry*, J. Everhard Weber.

Upon motion, the meeting adjourned.

S. WALDBOTT, *Secretary.*

PHILADELPHIA SECTION.

The meeting was called to order in the Harrison Laboratory, University of Pennsylvania, December 21, 1899, at 8.20 P.M., by the presiding officer, 35 members and visitors being present.

Prof. George F. Barker presented the paper of the evening "Some Recent Progress in Physics." He called attention to the method employed to measure the wave-lengths of some extremely high-pitched notes.

He also showed the spectrum of the new gas neon which was

prepared by Prof. Dewar and samples of the newly discovered substance radium which emits rays similar to the X-rays.

The meeting adjourned at 9.50 P.M. F. E. DODGE, *Secretary.*

WASHINGTON SECTION.

The regular meeting was held on December 14, 1899.

The first paper of the evening was read by Dr. W. D. Bigelow and was entitled "Determination of Metals in Canned Goods," by W. D. Bigelow and L. S. Munson.

After an examination of a number of the methods most commonly employed the authors gave preference to a modification of Allen's method.

The entire contents of the can are thoroughly mixed, and 75 to 100 grams taken for analysis. Often it is found preferable to dry the entire sample, extract with petroleum ether, again dry and grind, to obtain a permanent sample. In this case only 25 grams are employed in the determination of metals.

In either case the sample taken is treated with 4 cc. of strong sulphuric acid, 2 cc. of nitric acid, and 3 grams of magnesia. The whole is heated on a water-bath until it becomes pasty. It is then ignited over a Bunsen burner or in a muffle-furnace until thoroughly charred, ground in a mortar, again ignited to complete combustion, nitric acid being added from time to time towards the close of the operation. The residue is then boiled for a half hour in about 40 cc. of dilute hydrochloric acid (1 : 3), almost neutralized with sodium hydroxide, precipitated with hydrogen sulphide and filtered. The precipitate is dried and thoroughly mixed with 1 gram each of sodium carbonate, potassium carbonate and sulphur, fused for one-half hour in a covered porcelain crucible, digested in water and filtered.

The insoluble portion contains copper and lead. It is dissolved in nitric acid, and divided into two equal portions, in one of which the lead is precipitated as chromate and in the other copper is determined by titration with potassium cyanide. The filtrate from the fused sulphides is acidified with acetic acid, filtered and the precipitate thoroughly washed and transferred together with the filter-paper to a solution of ferric chloride, which is heated to the boiling-point and titrated with potassium bichromate. Zinc is precipitated as sulphide in the filtrate from

the original sulphide precipitate, after adding acetic acid and neutralizing the mineral acid with sodium hydroxide.

The second paper of the evening was read by Dr. Fireman, and was entitled: "The Action of Ammonium Chloride upon Tetra- and Pentachlorides" (preliminary communication), by P. Fireman and E. G. Portner.

The last paper of the evening was read by Mr. J. D. Tinsley and was entitled: "On the Estimation of the Water-soluble Constituents of Soils," by J. D. Tinsley and F. K. Cameron.

Dr. Seaman spoke on the size of medicine droppers found in the market. He had found them very variable, giving drops of different sizes. He showed that the size of the drop depends on the external diameter of the orifice and not on the thickness of the walls.

The regular meeting was held on January 11, 1900. The following officers were elected for the ensuing year: *President*, Dr. H. C. Bolton; *Vice-presidents*, Mr. V. K. Chesnut and Dr. Peter Fireman; *Secretary*, Mr. William H. Krug; *Treasurer*, Mr. W. P. Cutter; *Executive Committee*: The above officers and Messrs. Wirt Tassin, E. E. Ewell, H. N. Stokes, F. K. Cameron, and W. F. Hillebrand.

WILLIAM H. KRUG, *Secretary*.

NEW YORK SECTION.

The regular meeting of the New York Section was held at the Chemists' Club, 108 West 55th street, on Friday evening, January 5th, Dr. C. F. McKenna, presiding.

In addition to the program announced, Prof. George F. Barker was the unexpected guest of the section. He exhibited a sample of "Radio-active Substance A"; also, some photographs made by the same on sensitized plates, which had been wrapped in three thicknesses of orange-yellow paper, and as many thicknesses of black paper over them. Prof. Barker gave a brief historical sketch of the work done on this compound, bringing the subject up to date. The room was darkened to enable the audience to observe the feeble luminosity of the substance.

The regular program was then proceeded with and the following papers were read: "Laboratory Method for the Continuous and Uniform Generation of Acetylene and its Purification," by J. A. Mathews; "Upon the Carbide of Gold," by J. A. Mathews and L. L. Watters; "On the Reactions of Alkalies with the Cellulose Nitrates," by C. W. Volney; exhibition of lantern slides illustrating "Filters for Purifying Public Water Supplies," by Allen Hazen.

DURAND WOODMAN, *Secretary.*

LEHIGH VALLEY SECTION.

A regular meeting of the Lehigh Valley Section was held at Easton, Pa., in the Chemical Laboratory of Lafayette College, on Thursday evening, January 18th. Presiding Officer Richards was in the chair and eighteen members and invited guests were present. The following papers were read: "The Action of the Weaker Organic Acids on Carbonates," by Joseph W. Richards and Norman S. Powell; read by Mr. Powell. "An Abrasion Test for Emery," by Porter W. Shimer. "Goldschmidt's New Apparatus for Cutting Crystal Models," by Joseph W. Richards. "A Method for Determining Zinc by the Use of Standard Thiosulphate Solution," by Richard K. Meade.

RICHARD K. MEADE, *Secretary.*

Issued with March Number, 1900.

Proceedings.

COUNCIL.

In view of the U. S. Treasury decision 21170 relative to free importation of philosophical apparatus and preparations, which is likely to affect seriously the work of educational institutions and the laboratories of research, the council has voted that the president of the Society be authorized and directed to appoint a committee consisting of fifteen members of the Society, who shall be instructed to consider the present status of the laws and regulations governing the free importation of instruments, apparatus, and materials used in research work, and to take such action in the premises in the direction of securing such new legislation or modifications of existing laws and regulations as they may find necessary to the interests of the educational and research institutions.

The council has also voted that the president be authorized to appoint from the membership five persons to represent the Society in the Fourth Congress of Applied Chemistry, and that the sum of one hundred francs, or the equivalent thereof, be and is hereby appropriated for a subscription from the Society to the expenses of the said congress.

The following named persons have been elected by the council to the offices mentioned:

Charles F. McKenna, councilor for term expiring December, 1901.

Ernest E. Smith, director for term expiring December, 1901.

John A. Mathews, member of Finance Committee.

NAMES PROPOSED FOR MEMBERSHIP.

Carveth, Hector R., Chem. Lab., Cornell Univ., Ithaca, N. Y.
Cratty, John M., Chem. Lab., Navy Yard, Norfolk, Va.
Davies, Charles T., 1412 Perkiomen Ave., Reading, Pa.
Dunn, Willis A., 736 Fifth Ave., Helena, Mont.
Griffith, Herbert E., Galesburg, Ill.

Hooker, Samuel C., Spreckels Sugar Ref., Philadelphia, Pa.
McFarland, Wm. S., Barrett Mfg. Co., Philadelphia, Pa.
Mork, Harry S., 21 Wabeno St., Roxbury, Mass.
Norris, Robert S., Santa Maria, Cal.
Rosentwist, Birger G. A., Fessenden St., Jamaica Plain, Boston, Mass.
Ross, Herbert W., 1070 16th St., Oakland, Cal.
Smith, Fred D., Missoula, Mont.
Starz, Emil, 204 N. Rodney St., Helena, Mont.
Syme, W. A., Raleigh, N. C.
Taylor, H. W., Lab. Tenn. Cotton Oil Co., Memphis, Tenn.
Whittier, Charles T., Provident Chem. Wks., St. Louis, Mo.

NAMES PROPOSED FOR ASSOCIATE MEMBERSHIP.

Burke, Edmund, Bozeman, Mont.
Clark, Clara, Bozeman, Mont.
Cockrill, Irwin, Bozeman, Mont.
Draper, Charles W., Bozeman, Mont.
Evans, James A., 110 N. Thayer St., Ann Arbor, Mich.
Lamme, Maurice, Bozeman, Mont.
Reese, Herbert J., Bozeman, Mont.
Spragg, Frank A., Bozeman, Mont.
Wood, Jas. Leslie, Jr., Bozeman, Mont.

CHANGES OF ADDRESS.

Adams, Isaac, 1776 Massachusetts Ave., N. Cambridge, Mass.
Austin, N. M., 1236 Pennsylvania Ave., Allegheny, Pa.
Bassett, W. H., N. J. Zinc Co., Newark, N. J.
Baxter, Wm. T., 254 New York St., Aurora, Ill.
Beck, Oscar C., 305 S. 40th St., Philadelphia, Pa.
Becker, J. B., 1104 Douglass St., Sioux City, Iowa.
Clarke, Thomas, Birmingham, Ala.
Couch, Guy E., 631 E. Front St., Cincinnati, Ohio.
Crane, Frederic, 28 Hillside Ave., Montclair, N. J.
Gabriel, Geo. A., Box 390, Cumberland Mills, Me.
Hall, C. A., 3220 Powelton Ave., Philadelphia, Pa.
Harding, E. P., 22 Landhaus Strasse, Heidelberg, Germany.
Henderson, W. E., Ohio State Univ., Columbus, Ohio.
Johnson, E. S., 315 Highland Ave., Syracuse, N. Y.
Keller, Edward, P. O. Box 724, Baltimore, Md.
Kelly, F. G., care Tenn. C. I. & R. Co., Birmingham, Ala.
Lyng, M. H., Republic, Wash.
Mason, Francis P., 214 Monadnock Bldg., Chicago, Ill.
Miller, F. W., Talladega, Ala.
McBryde, J. B., Blacksburg, Va.
Perkins, Albert S., 75 Milton Ave., Hyde Park, Mass.

Peyton, Wm. C., Peyton Chem. Wks., Mutual Life Bldg., San Francisco, Cal.
Reese, Chas. L., N. J. Zinc Co., Newark, N. J.
Seidensticker, L. J., 178 Thornton St., Boston, Mass.
Shilstone, Herbert M., 166 St. James Place, Brooklyn, N. Y.
Smolt, F. O., 23 N. Tejon St., Colorado Springs, Col.
Sy, Albert P., 24 High St., Buffalo, N. Y.
Thomas, W. H., care Colonial Bleaching & Printing Co., St. Henry, Montreal, Can.
Torrey, Chas. A., Jr., 1015 S. 48th St., Philadelphia, Pa.
Wolff, Frank A., Jr., Columbian Univ., Washington, D. C.
Worstall, Robert A., 139 Kennard St., Cleveland, Ohio.

ADDRESSES WANTED.

Hartman, Wm. E., 843 Lafayette Ave., Detroit, Mich.
Wood, J. R., 439–441 Green St., Philadelphia, Pa.

CORRESPONDENCE.

The following is the copy of a letter received by ex-President Morley from Dr. J. H. van't Hoff, in response to the Society's cablegram:

CHARLOTTENBURG, January 27, 1900.

My Dear Colleague:

I beg you to express my feelings of thankfulness to the American Chemical Society, which gladdened and honored me by its telegraphic congratulations on my jubilee. At the same time I have to thank you and the secretary, Mr. Hale, more especially, the congratulation having your names. With my best wishes for the prosperity of your Society, I am,

Yours truly,

J. H. VAN'T HOFF.

MEETINGS OF THE SECTIONS.

CINCINNATI SECTION.

The seventy-third regular meeting of the Cincinnati Section was held in the Chemical Lecture Room of Hanna Hall, University of Cincinnati, on Monday evening, January 15, 1900. President Evans occupied the chair. Twenty-five members were present.

Dr. Otto Dieckmann read a paper on "Researches on Methylbenzimid-azole," which was a report on some of the author's work done under the direction of Prof. Zincke, at Marburg.

By special request Dr. Evans gave an extended résumé of the contents of his paper on "Ricinine" read by title at the December meeting.

FRANK I. SHEPHERD, *Secretary.*

NORTH EASTERN SECTION.

The regular monthly meeting of the section was held on Thursday evening, January 18th, President Little calling the meeting to order, with 63 members present.

After the transaction of business, Mr. Henry Howard presented a paper on "The Manufacture of Aluminum Sulphate by the Bayer Process," sketching the history of the alumina industry and explaining the theory and practice of the new method of manufacture.

A paper on "The Canned Foods Industry" by Mr. W. L. Underwood followed, in which was given the development of the business since its foundation in 1819, the difficulties which have been met, and how they have been overcome. In connection with this subject Mr. S. C. Prescott presented a paper on "The Preservation of Foods." This paper was illustrated by drawings and photographs of the micro-organisms which are found on, and in vegetables and other foods, and the author explained the methods by which these are destroyed. After examining the samples with which all the papers were illustrated, the meeting adjourned.

The February meeting was held on Friday evening February 16th, at the Hotel Oxford, Vice-president Elihu Thomson in the chair and 60 members present.

The first paper of the evening was presented by Mr. Thomson on "The Properties of Carbon in Their Relation to Electrical Work." The author discussed the peculiar properties of carbon on which the development of applied electricity has so largely depended, calling special attention to those properties requisite for the terminals of arc lights, for incandescent light filaments, telephone transmitters and generating machine brushes.

The next paper was by Dr. F. H. Thorp on "The Potash Industry as seen at Stassfurt." After describing the position and composition of the different strata of the Stassfurt deposit, the author explained the method of mining and preparing for

market the different potash salts which are of commercial importance.

The section considered the resolutions which have been drawn up by the Committee on Instruments of Measure relating to the establishment of a National Standards Bureau, and on motion of Dr. H. P. Talbot the following resolution was adopted.

Resolved, That the members of the Northeastern Section of the American Chemical Society heartily endorse the proposed movement to secure the establishment of a National Standards Bureau for the verification of chemical apparatus, in connection with the United States Office of Weights and Measures; and that they desire to record as their opinion that such a bureau is urgently demanded in the interests of pure and applied chemistry in the United States.

At 10.10 the meeting adjourned.

W. H. WALKER, *Secretary.*

NORTH CAROLINA SECTION.

The fourth annual meeting of the North Carolina Section was called to order in the office of the State Chemist, Raleigh, at noon, February 24, 1900, by the presiding officer, Dr. Charles Baskerville. Sixteen members and invited guests were present.

After the reports of the different committees the following was introduced and carried:

Resolved, That it is the sense of the North Carolina Section that Article X, Sec. 1, of the Constitution of the American Chemical Society be so amended that when the local membership of a section is below 50 that section shall be entitled to draw annually an amount equivalent to one-third of the aggregate dues paid to the Society by its members. If the membership shall exceed 50 and be less than 200 the section shall be entitled to draw one-fourth; and if it shall reach a total of 200 the section shall be entitled to draw one-fifth.

A committee consisting of F. P. Venable, B. W. Kilgore, and W. A. Withers were appointed with carte-blanche to draft and forward resolutions to Congress in relation to the establishment and maintenance in connection with the Bureau of Weights and Measures, a department to graduate and verify weights and volumetric apparatus.

The following papers were read and discussed:

"Temperature for the Graduation of Volumetric Apparatus for Southern Laboratories," by B. W. Kilgore; "On the Qual-

itative Determination of Tin, Arsenic and Antimony," by Charles Baskerville; "Radio-active Bodies," by F. P. Venable; "Composition of Commercial Chromium Sulphate," by F. P. Venable; "Variable Ammonia Results in Mixed Fertilizers Containing Either Fish Scrap, Blood, Tankage, or Nitrate of Soda," by C. B. Williams; "Chemical Economics," by Charles Baskerville.

Officers elected for the ensuing year are:

President, B. W. Kilgore; *Vice-president*, W. J. Martin, Jr.; *Secretary and Treasurer*, C. B. Williams; *Representative in Council for 1901*, Charles Baskerville; *Executive Committee*, B. W. Kilgore, W. J. Martin, Jr., and C. B. Williams.

There being no further business the section adjourned.

C. P. WILLIAMS, *Secretary*.

PHILADELPHIA SECTION.

The seventh meeting was called to order in the Harrison Laboratory, University of Penna., January 18, 1900, at 8.20 P.M., 13 members being present. The presiding officer being absent Dr. Mathews was elected chairman for the evening. The minutes of the last meeting were read and approved.

The recommendation of the Finance Committee of the American Chemical Society, in relation to the distribution of dues for the benefit of the local sections, was read and discussed by Messrs. Shinn, Mathews, Kebler, and others. It was moved and seconded that the recommendation of the Finance Committee be accepted. Carried.

The following papers were presented:

"A Study in Iodination" by J. F. X. Harold, in which he called attention to the fact that it appeared that nobody had studied the reaction resulting from the action of hydrogen sulphide on iodine in the presence of alcohols, such as methyl alcohol, ethyl alcohol, etc. He showed that in the presence of an excess of iodine, the nascent hydriodic acid formed, attacked the alcohols forming iodides of the alcohol radical.

Lyman F. Kebler called attention to some of the exceedingly stringent requirements of the U. S. Pharmacopoeia, such as 100 per cent. purity, the absolute exclusion of chlorides and sulphates in such products as sodium benzoate, lithium carbonate, potassium hypophosphite, etc. He thought it very desirable to

have high standards, but they should not be beyond a point reasonably attainable. Many inconsistencies were pointed out in the 1890 edition. He also discussed at some length, why the American Chemical Society should be represented by several delegates at the Decennial Pharmacopoeial Convention. This may not be feasible for the convention that convenes next May, but in view of the fact that several of the states have already passed Food and Drug Adulteration Laws, making the U. S. P. standard in cases under these laws, it seems eminently desirable that the American Chemical Society should have representatives on the 1900 U. S. Pharmacopoeial Revision Committee.

The meeting adjourned at 9.45 P.M.

F. E. DODGE, *Secretary.*

COLUMBUS SECTION.

The Columbus Section has held its regular monthly meetings, the following papers having been presented during the present collegiate year.

"Reminiscences of Bunsen," by S. A. Norton; "Cyclic Methylene Compounds," by C. C. Howard; "A Discussion of Werner's Hypothesis," by Wm. E. Henderson; "The Action of α-Acylphenylhydrazines on Chlorquinones," by Wm. McPherson; "The Detection of Blood," by A. M. Bleile; "The Mid-winter Meeting of the American Chemical Society," by Wm. McPherson.

The following officers have been elected for the year:

President, H. A. Weber; *Secretary*, Wm. McPherson; *Treasurer*, W. E. Henderson; *Committee on Membership*, G. B. Kauffman, A. M. Bleile; *Member of Council*, Wm. McPherson.

WILLIAM MCPHERSON, *Secretary.*

NEW YORK SECTION.

The regular meeting of the New York Section was held in the assembly room of the Chemists' Club, 108 West 55th Street, on Friday evening, February 9th, at 8.30 P.M., Dr. C. F. McKenna presiding. There were about 50 members present.

Resolutions relative to a National Standards Bureau, forwarded by the chairman of the Committee on Standards of Instruments of Measure of the American Chemical Society, were read and, on motion, approved.

The following papers were then read: "The Technical Analysis of Rope and Twine," by Durand Woodman; "A New Synthesis in the Phen-miazin Series," by M. T. Bogert and August Gotthelf; "On the History of Photo-chemical Improvements, with Experiments," by Maximilian Toch.

A motion was made and seconded empowering the chair to appoint a committee to arrange for a meeting to be devoted to "Laboratory Apparatus and Products."

The meeting adjourned to meet March 9th.

DURAND WOODMAN, *Secretary.*

Issued with April Number, 1900.

Proceedings.

The twenty-first general meeting of the American Chemical Society will be held in New York City, Monday and Tuesday, June 25 and 26, 1900. Members desiring to present papers are urged to send titles and abstracts as soon as possible to the secretary, Albert C. Hale, 551 Putnam Ave., Brooklyn, N. Y.

COUNCIL.

The amendments to the by-laws offered by Dr. Hillebrand were not adopted, a majority of the council voting against them.

NAMES PROPOSED FOR MEMBERSHIP.

Berkeley, Wm. N., San Juan, Puerto Rico.
Bertelli, Riccardo, 20 W. 16th St., N. Y. City.
Blake, Lucien I., Univ. of Kas., Lawrence, Kas.
Colley, Bernard T., care C. K. C. S. & R. Co., Argentine, Kas.
Davis, Charles B., 518 Manhattan Ave., N. Y. City.
Ebaugh, W. Clarence., 3741 Lancaster Ave., Philadelphia, Pa.
Ginder, W. H. H., Vandergrift, Pa.
Hatchett, Roger H., Argentine, Kas.
Hill, Edwin A., Patent Office, Washington, D. C.
Hofmann, Ottokar, Argentine, Kas.
Irwin, Edward B., 714 W. 11th St., Kansas City, Mo.
Jessup, A. E., Office of Supervising Architect, Treasury Dept., Washington, D. C.
Johnson, Flowmoy C., 714 Union St., New Orleans, La.
Koelle, Carl, Argentine, Kas.
Moechel, Jean Robert, 710 Wyandotte St., Kansas City, Mo.
Neilson, Thomas, Tucson, Ariz.
Neish, Arthur C., Columbia Univ., N. Y. City.
Peters, Fredus N., Central High School, Kansas City, Mo.
Rudinck, Paul F. A., 3701 S. Lincoln St., Chicago, Ill.
Sloane, T. O. Coner, 39 Wall St., N. Y. City.
Smither, F. W., 36 Cole Bldg., Nashville, Tenn.
Torrey, Henry A., 75 S. Prospect St., Burlington, Vt.
Whipple, Geo. C., Flatbush Ave. & Eastern Parkway, Brooklyn, N. Y.
Whitten, W. H., Jr., Westport High School, Kansas City, Mo.
Zeizler, John Clayton, Torpedo Station, Newport, R. I.

NAMES PROPOSED FOR ASSOCIATE MEMBERSHIP.

Harriman, Norman F., Ann Arbor, Mich.
Wellard, H. H., 520 E. Ann St., Ann Arbor, Mich.

NEW MEMBERS ELECTED MARCH 9, 1900.

Armsby, Prof. H. P., State College, Pa.
Arnott, Geo. W. Campbell, 27 William St., N. Y. City.
Bach, August, 537 Nelson St., Chicago, Ill.
Bullard, Frank D., 245 Bradbury Block, Los Angeles, Cal.
Cuadrado, Gaston A., Calle de la Habana, 112, Habana, Cuba.
Douglas, William, Plantation Diamond, Demerara, British Guiana.
Gardunio, Jesur, Aguascalientes, Mexico.
Goodell, Geo. A., 284 St. Nicholas Ave., N. Y. City.
Hamlin, Addison, 25 5th St., Bangor, Me.
Herger, Charles G., 11 Putnam St., Buffalo, N. Y.
Hulett, George A., 706 S. Thayer St., Ann Arbor, Mich.
Lihme, C. B., care of Ill. Zinc Co., Peru, Ill.
Mills, James E., Chapel Hill, N. C.
Mork, Harry S., 21 Wabeno St., Roxbury, Mass.
Norris, Robert S., Santa Maria, Cal.
Remington, Joseph P., 1832 Pine St., Philadelphia.
Richards, Joseph, 1802 Catherine St., Philadelphia.
Richardson, Wm. D., 4803 Madison Ave., Chicago, Ill.
Ross, Herbert W., 1070 16th St., Oakland, Cal.
Syme, W. A., Raleigh, N. C.
Thorne, Ernest E. H., Bridgetown, Barbadoes, B. W. I.
Thurlow, Nathaniel, 55 New St., Newark, N. J.
Weld, Fred C., Littleton, Mass.
Wolf, Ernst, 214 E. 82nd St., N. Y. City.
Wolfe, J. V., Jr., Rochester, Mich.

ASSOCIATES ELECTED MARCH 9, 1900.

Bates, Hugh H., 502 E. 3rd St., Cincinnati, O.
Berghausen, Oscar, 644 Crown St., Walnut Hills, Cincinnati, O.
Block, Jesse A., Polytechnic Institute, Worcester, Mass.

CHANGES OF ADDRESS.

Affelder, Oscar I., care Pittsburg Gas & Coke Co., Otto, Pa.
Best, Otto, 16 Mastic Terrace, Alameda, Cal.
Busby, Fred E., Mass. Inst. Tech., Boston, Mass.
Chamberlin, W. E., 127 Pearl St., N. Y. City.
Couch, Guy E., Hartwell, Hamilton Co., Ohio.
Dodge, F. E., care Barrett Mfg. Co., Tucker & Bermuda Sts., Frankford, Pa.
Hanks, A. Abbott, 531 California St., San Francisco, Cal.
Hartman, Wm. E., Kalamazoo Gas Co., Kalamazoo, Mich.
Hough, George J., 2235 Sheridan Rd., Evanston, Ill.
Jones, A. B., Lock Box 741, Pittsburg, Pa.
Kelley, J. H., 315 N. Vine St., Nashville, Tenn.

Lichtenstein, A. F., 67 Elmwood Ave., N. Adams, Mass.
Martin, M. A., U. S. Mint, San Francisco, Cal.
Parmelee, C. W., care N. Y. & Boston Dyewood Co., 55 Beekman St., N. Y. City.
Richardson, Clifford, N. Y. Testing Lab., L. I. City, N. Y.
Skinner, Hervey J., care Moro Phillips Chem. Co., Camden, N. J.
Tucker, S. A., Havemeyer Hall, Columbia Univ., N. Y. City.
Walker, P. H., care Ala. Consolidated C. & I. Co., Gadsden, Ala.
Watkins, W. H., 87 Poplar St., Roslindale, Mass.

MEETINGS OF THE SECTIONS.

PHILADELPHIA SECTION.

The eighth meeting was called to order February 15th, at 8.25 P.M. in the Harrison Laboratory, University of Pennsylvania, February 15th, 20 members being present, the presiding officer was in the chair. The minutes of the last meeting were read and approved.

A letter from the chairman of the Committee on "A National Standardizing Bureau" of the American Chemical Society, was read; also a set of resolutions, which after some discussion were adopted as read.

A motion was made that the section meet promptly at 8 o'clock in the future. Seconded and carried.

Mr. George Auchy presented the paper of the evening: "Remarks on Some Methods of Determining Carbon in Steel." The paper was discussed by Messrs. Meeker, MacFarland, Sargent, Job, and Jayne.

There being no further business the meeting adjourned at 10 P.M.

F. E. DODGE, *Secretary*.

ORGANIZATION OF MICHIGAN SECTION.

The first meeting of the Michigan Section of the American Chemical Society was held at the house of Professor Prescott in Ann Arbor, on Friday, February 28th, at four in the afternoon. Of the 42 members of the section in the State, 26 had promised to be present, but the heavy snow on that day blocked railroad traffic to such an extent that most of the members not resident in Ann Arbor who attempted to come, spent the day in trains

stalled in snow-drifts. The meeting was called to order by Professor Prescott, with 16 members of the section present, and Dr. Wiley, of Washington, as an invited guest. Professor R. C. Kedzie of the Agricultural College was elected temporary chairman. Dr. Prescott gave a short statement of the movement he had started leading to the granting of a charter to the Michigan Section with territory covering the state of Michigan, and headquarters at the University of Michigan. Dr. Wiley was asked for remarks and responded with his congratulations on the formation of the new section, and an account of the methods of the Washington Section. The by-laws recommended by the Committee of Arrangements were adopted and the following officers elected for the year 1900:

Presiding Officer, Professor A. B. Prescott, Ann Arbor; *Secretary and Treasurer*, Alfred H. White, Ann Arbor; *Member of Council*, Professor Paul C. Freer, Ann Arbor; *Elective Members of Executive Committee*, A. F. Shattuck, Chemist Solvay Process Co., Detroit; F. S. Kedzie, Professor, Agricultural College; J. V. Wolfe, Jr., Chemist Detroit Sugar Co., Rochester.

At the close of the business meeting, the members were entertained at dinner by Professor Prescott, and later listened to an illustrated lecture by Professor Freer on "Liquid Air." Many of the members also attended the sessions of the State Farmers' Institute on the following day when Dr. Wiley and others spoke on various questions pertaining to the beet sugar industry.

ALFRED H. WHITE, *Secretary*.

CHICAGO SECTION.

Two meetings of the Chicago Section were held during February at the Union Restaurant, 111 Randolph St.

On the 8th, Mr. D. H. Trowbridge gave a very interesting paper on the "Manufacture and Chemistry of Beet Sugar."

On the 28th, Prof. W. O. Atwater, of Wesleyan University, who was the guest of the section gave an informal talk on the respiration calorimeter and its results.

F. B. DAINS, *Secretary*.

Issued with May Number, 1900.

Proceedings.

BOARD OF DIRECTORS.

A meeting of the Board of Directors of the American Chemical Society was held at the Chemists' Club, 108 W. 55th St., New York City, March 21, 1900. There were present Messrs. McMurtrie, Hale, Hallock, Doremus, and Smith.

The meeting was called to order by President McMurtrie at 8:20 P.M. The minutes of the previous meeting were approved, as recorded in the secretary's book. Upon motion of Dr. Doremus the following schedule of prices for the Journal was adopted, and all previous schedules of prices inconsistent therewith were repealed.

For volumes of either 10 or 12 numbers:

	To members.	To non-members.
Current volume	$5.00	$6.00
" numbers	0.50	0.60
Back volumes	3.00	6.00
" numbers	0.30	0.60

For volumes of less than 10 numbers:

	To members.	To non-members.
Volumes	$3.00	$6.00

Numbers at proportionate rates. Discount to dealers, 15 per cent. on prices to non-members.

The librarian was directed to have prepared 1000 copies of a circular letter setting forth the above prices.

In order to economize space in the library, the librarian was authorized to prepare for binding any unbound material belonging to the library.

He was also authorized to exchange or sell, at his discretion, any duplicate material; and further, to publish in the advertising pages of the Journal a list of the numbers missing from the files in the library.

The treasurer was authorized to pay the note of the Society which falls due March 27.

The board then adjourned to meet in the same place, Friday, March 23, at 3 P.M.

An adjourned meeting of the Board of Directors of the American Chemical Society was held at the Chemists' Club, 108 W. 55th St., New York, March 23, 1900. There were present Messrs. McMurtrie, Hale, Hallock, Dudley, Doremus, and Smith.

The meeting was called to order by President McMurtrie at 8:40 P.M. The minutes of the meeting held March 21, were read and approved.

Upon motion of Dr. Doremus the schedule of prices for the Journal adopted at the last meeting was reconsidered and was amended so as to read as follows:

For volumes of either 10 or 12 numbers:

	To members.	To non-members.
Current volume	$5.00	$6.00
" numbers	0.50	0.60
Back volumes	4.00	6.00
" numbers	0.40	0.60

For volumes of less than 10 numbers:

	To members.	To non-members.
Volumes	$4.00	$6.00

Numbers at proportionate rates. Discount to dealers, 15 per cent. on prices to non-members.

It was voted that the librarian be requested to furnish to the Board of Directors a survey of the sets of the Journal now the property of the Society that the same may be scheduled for sale.

The following preamble and resolutions were unanimously adopted:

"WHEREAS, in a letter to the secretary of the Society, dated February 6, 1900, formal notice of the termination of the contract for printing the Journal of the Society was given by the Chemical Publishing Company, and

WHEREAS, the Chemical Publishing Company, in a letter to the secretary, dated February 20, 1900, proposed to continue for a period of 6 months, from May to October, inclusive, to publish the Journal in consideration of a bonus of ten dollars ($10) a month above the price fixed by the contract,

Be it Resolved, that the Board of Directors, by and with the consent of the council, hereby accepts the notice of the termination of the contract, and agrees to pay to the said Chemical Publishing Company the bonus of ten dollars ($10) per month above

the price fixed by the contract, in consideration of the temporary continuation, in accordance with all the terms of the said contract of the publication of the Journal from May to October 1900, inclusive.

The minutes of the meeting were read and approved. The board then adjourned.

COUNCIL.

The following report and recommendations have been received from the Committee on Standards for Instruments of Measure, and have been approved by the council.

January 10, 1900.

To the Council of the American Chemical Society.

GENTLEMEN: We, the undersigned, members of the Committee on Standards for Instruments of Measure of the American Chemical Society, have considered the resolutions transmitted herewith and beg to ask your favorable consideration and action upon them, in accordance with the following motion passed by the Society at the recent New Haven meeting:

"Moved to refer the suggestions and resolutions of Mr. Ewell to the Committee on Standards for Instruments of Measure for consideration and report to the council which is requested to take action in the matter; and, further, that the Committee on Standards for Instruments of Measure be empowered to increase its number for the purpose of considering this subject."

We recommend further, that these resolutions be printed with the signatures of the officers and councilors of the Society, and in sufficient number so that one thousand copies will be available for the use of this committee after copies have been transmitted by the secretary of the Society to the persons or bodies designated in the resolutions and to as many additional persons or bodies as your wisdom may suggest.

Your committee, named in the motion quoted above and as enlarged in accordance therewith, beg to so interpret that motion that the powers therein granted will be fully utilized, and the duties therein imposed will be duly executed, by each member of the committee constituting himself a sub-committee of one to place a copy of the resolutions in the hands of every person whose interest and efforts he believes will aid the movement; and by persuading him, by personal letters or by conversation when possible, to seek to impress the importance of our request upon as many as possible of the members of the two houses of Congress and of the appropriate committees thereof.

We also ask that the proper committees and officers of the Society be empowered and directed to honor bills for expenditures

for postage incurred in the execution of this plan by the ten members constituting this committee.

Respectfully,

E. E. EWELL, *Chairman*,
G. E. BARTON,
C. E. LINEBARGER,
H. P. TALBOT,
LOUIS A. FISCHER,
F. W. CLARKE,
C. B. DUDLEY,
E. W. MORLEY,
C. E. MUNROE,
H. W. WILEY.

Committee on Standards for Instruments of Measure of the American Chemical Society.

RESOLUTIONS RELATIVE TO A NATIONAL STANDARDS BUREAU.

WHEREAS, in the conduct of exact chemical and physical investigations, the use of apparatus of guaranteed accuracy is a necessity which is recognized by all physicists and chemists; and

WHEREAS, in foreign countries, notably in Germany and England, such guarantee is furnished by standardizing bureaus under the control of their respective governments; and

WHEREAS, at present the U. S. Office of Standard Weights and Measures does not possess appliances necessary for the verification of as wide a range of apparatus in kind and form as seems essential, nor the working force requisite to comply with legitimate demands for the verification and stamping of chemical and physical apparatus, thus compelling the importation of foreign-made apparatus when such official certification is desired; and,

WHEREAS, this state of affairs is not only unsatisfactory to all chemists, but also works injustice to our manufacturers of thermometers, hydrometers, volumetric apparatus and other chemical measuring instruments who can not supply the proper certification with such apparatus; therefore be it

Resolved, that the congress of the United States be urged to establish a National Standards Bureau in connection with the U. S. Office of Standard Weights and Measures which shall provide adequate facilities for making such verification of chemical measuring apparatus and for stamping the same, as are provided by foreign governments for similar work.

Resolved further, that a copy of the foregoing be forwarded to the Secretary of the Treasury, under whose control the present office of Standard Weights and Measures comes; to the Super-

intendent of the U. S. Coast and Geodetic Survey; to the President of the U. S. Senate; to the Speaker of the U. S. House of Representatives; to the Chairman and members of the Committee on Coinage, Weights and Measures; and, to the presiding officers of the various sections of this Society and to the presiding officers of other scientific bodies likely to be interested, with a request for the cooperation of those organizations in our efforts to secure for the U. S. Office of Standard Weights and Measures ample facilities, in point of apparatus and working force, to enable that office to comply with the requests for the verification of measuring instruments that may be made by American scientific workers.

E. E. EWELL, *Chairman*,
G. E. BARTON,
C. E. LINEBARGER,
H. P. TALBOT,
LOUIS A. FISCHER,
F. W. CLARKE,
C. B. DUDLEY,
E. W. MORLEY,
C. E. MUNROE,
H. W. WILEY.

Committee on Standards for Instruments of Measure of the American Chemical Society.

REFERENCES TO SOME RECENT LITERATURE ON THIS SUBJECT.

"Volumetric Apparatus." By G. E. Barton. *J. Am. Chem. Soc.*, 20, 731–739 (1898).

"On the Facilities for Standardizing Chemical Apparatus Afforded by Foreign Governments and Our Own." By Louis A. Fischer. *J. Am. Chem. Soc.*, 20, 912–927 (1898).

"A Brief History of the Movement for Increasing the Accuracy and for Improving the Construction of Chemical Measuring Instruments." By Ervin E. Ewell. *J. Am. Chem. Soc.*, 21, 527–550 (1899).

"Maasanalytische Studien." By Dr. Julius Wagner. (A Book Review.) By H. P. Talbot. *J. Am. Chem. Soc.*, 21, 551–555 (1899).

"On the Limits of Accuracy in Technical Analysis." By J. Grossman. *J. Soc. Chem. Ind.*, 18, 977–981 (1899).

"The Regulations of the Physikalisch-Technische Reichsanstalt Relative to Thermometers." Translated by C. E. Linebarger. *J. Am. Chem. Soc.*, 22, 121 (1900).

NAMES PROPOSED FOR MEMBERSHIP.

Ackerman, Franz W., 54 Livingston St., Brooklyn, N. Y.
Ansbacher, Louis A., 4 Murray St., N. Y. City.
Braun, F. W., 501–505 N. Main St., Los Angeles, Cal.

Emery, A. L., Palo Alto, Cal.
Frazee, F. H., 416 Concord Ave., Detroit, Mich.
Gibbon, R. Fitz, 77 John St., N. Y. City.
Hartley, Kenneth, Kansas City, Kansas.
Hartford, James, 100 William St., N. Y. City.
Hess, Henry W., 1829 Summit Ave., Toledo, O.
Hummel, John A., State Capitol, St. Paul, Minn.
Landis, Edward K., 4025 Spruce St., Philadelphia.
Neumeister, E. J., Alma Sugar Co., Alma, Mich.
Nikaido, Yasajuro, 2375 O St., Lincoln, Nebr.
Russell, Herman, 721 E. Ann St., Ann Arbor, Mich.
Schnierwind, F., Ph.D., United Coke and Gas Co., 36 Wall St., N. Y.
Soper, George A., 251 W. 93d St., N. Y. City.
Van Riper, George B., Rutherford, N. J.
Veitch, Alexander, Clifton, Ariz.

NAMES PROPOSED FOR ASSOCIATE MEMBERSHIP.

Eccles, David C., 191 Dean St., Brooklyn, N. Y.
Kiehn, John F., 3631 S. Winchester Ave., Chicago, Ill.
Stierlin, E., 1110 Queen City Ave., Cincinnati, O.

NEW MEMBERS ELECTED APRIL 28, 1900.

Berkeley, Wm. N., San Juan, Puerto Rico.
Bertelli, Riccardo, 20 W. 16th St., N. Y. City.
Blake, Lucien I., Univ. of Kansas, Lawrence, Kas.
Colley, Bernard T., C. K. C. S. & R. Co., Argentine, Kas.
Davis, Charles B., 518 Manhattan Ave., N. Y. City.
Ebaugh, W. Clarence, 3741 Lancaster Ave., Philadelphia.
Ginder, W. H. H., Vandergrift, Pa.
Hatchett, Roger H., Argentine, Kas.
Hill, Edwin A., Patent Office, Washington, D. C.
Hofmann, Ottokar, Argentine, Kas.
Irwin, Edward B., 714 W. 11th St., Kansas City, Mo.
Jessup, A. E., Office of Surpervising Architect, Treasury Dept., Washington, D. C.
Koelle, Carl, Argentine, Kas.
Moechel, Jean R., Ph.D., 710 Wyandotte St., Kansas City, Mo.
Neilson, Thomas, Tucson, Ariz.
Neish, Arthur C., Columbia University, N. Y. City.
Peters, Fredus N., Central High School, Kansas City, Mo.
Rudinck, Paul F. A., 3701 S. Lincoln St., Chicago.
Sloane, T. O'Conor, 39 Wall St., N. Y. City.
Smither, F. W., 36 Cole Building, Nashville, Tenn.
Torrey, Henry A., 75 S. Prospect St., Burlington, Vt.

Whipple, George C., Flatbush Ave. and Eastern Parkway, Brooklyn, N. Y.

Whitten, W. H., Jr., Westport High School, Kansas City, Mo.

Ziegler, John C., U. S. Torpedo Station, Newport, R. I.

ASSOCIATES ELECTED APRIL 28, 1900.

Harriman, Norman F., Ann Arbor, Mich.

Willard, H. H., 520 E. Ann St., Ann Arbor, Mich.

CHANGES OF ADDRESS.

Belden, A. W., Birmingham Cement Co., Ensley, Ala.

Bloomfield, L. M., Valencia via Catacamas Olancho, Honduras, C. A., via New Orleans.

Cluff, Clarence B., 6608 Stewart Ave., Chicago, Ill.

Granja, Rafael, care The Palen Co., Kingston, N. Y.

Haslwanter, Charles, 904 Flushing Ave., Brooklyn, N. Y.

Hayes-Campbell, J., 514 E. 6th St., Newport, Ky.

Kenan, Wm. R., Jr., care Trader's Paper Co., Lockport, N.Y.

Kirchgasser, W. C., 74 and 76 Laight St., N. Y. City.

Loeser, R. M., care First Nat. Bank, El Paso, Texas.

Luschka, Otto, care Seamon Chemical Laboratory and Assay Office, El Paso, Texas.

Magruder, E. W., Dept. of Agr., Richmond, Va.

Nelson, E. K., 4526 Oakenwald Ave., Chicago, Ill.

Power, F. B., The Wellcome Research Laboratories, 6 King St., Snow Hill, E. C., England.

Smith, H. E., 29 31st Street, Milwaukee, Wis.

Thatcher, R. W., Agr. Expt. Sta., Lincoln, Nebr.

Thurnauer, Gustav, Aurora Metal Co., Aurora, Ill.

Wrampelmeier, T. J., 320 California St., San Francisco, Cal.

Yeaton, Arthur C., Westbrook Sem., Portland, Me.

Zimmele, H. B., 53 South Washington Square, New York City.

MEETINGS OF THE SECTIONS.

MICHIGAN SECTION.

The Michigan Section met on Friday evening, April 27, in the parlors of the Normandie Hotel, Detroit, with 57 members and visitors in attendance. Before the meeting there was an informal dinner at which 26 were present. The following papers were presented:

"Filtration of Drinking Water." By A. F. Shattuck.

"Theory of Hardening of Steel." By E. D. Campbell.

"Distillation of Amalgams and Purification of Mercury." By Geo. A. Hulett.

The paper announced by Charles C. Sherrard was, at his request, postponed till the next meeting.

ALFRED H. WHITE, *Secretary.*

NEW YORK SECTION.

The March meeting of the New York Section was held at the Chemists' Club, on Friday evening, March 9th, Dr. C. F. McKenna presiding.

The annual meeting of the Society at large, it was announced, would be held in New York in June in conjunction with the meeting of the Association for the Advancement of Science, and on motion it was voted that the Executive Committee be authorized to prepare for the reception of the American Chemical Society in June, and to add to their number as may be necessary.

The following papers were read:

"Normal Chlorine Map of Long Island." By Messrs. G. C. Whipple and D. T. Jackson.

"A New Industrial Process for the Separation of Oxygen, Nitrogen, and Carbon Dioxide from the Atmosphere at Extraordinarily Small Cost." By Prof. Raoul Pictet.

After a vote of thanks to Prof. Pictet the meeting adjourned.

The April meeting of the New York Section of the American Chemical Society, was held on Friday evening, April 6th, at the Chemists' Club, 108 West Fifty-fifth Street. Dr. C. F. McKenna presided, and the following papers were read:

"A Method of Obtaining Nucleic Acid." By Dr. P. A. Levene.

"Analysis of a Saline Deposit from Southern Nevada." By Ralph W. Bailey.

"Notes on the Ferrocyanide Titration of Zinc." By Dr. E. H. Miller and E. J. Hall.

Special announcement was made of an extra meeting to be held on May 2d for the exhibition of novel forms of apparatus, products, etc., and that the meeting would be in the nature of a reception, to which the ladies and friends of the members would be invited. The Section on this occasion will be the guest of the Chemists' Club.

An invitation to attend the next meeting of the New York Section of the Society of Chemical Industry, on the occasion of the presentation of a paper on "Petroleum and its Products," by Dr. C. F. Newberry, signed by Dr. Parker, was then read, after which the meeting adjourned. DURAND WOODMAN, *Secretary.*

CINCINNATI SECTION.

The 74th regular meeting of the Cincinnati Section was held in the Chemical Lecture Room, Hanna Hall, University of Cincinnati, on Thursday evening, February 15, 1900. Prof. R. M. Hughes occupied the chair. 32 members and visitors were present.

A communication from the Chairman of the Committee on Standards of Measure, of the American Chemical Society, was referred to a committee consisting of the president and secretary, with power to act.

The paper of the evening, "Expert Evidence," was presented by Dr. Alfred Springer.

The 75th regular meeting of the Cincinnati Section was held on Thursday evening, March 15th, at the usual place of meeting in Hanna Hall. Dr. Evans presided, and 22 members and visitors were in attendance.

The Committee on a National Standards Bureau reported that it had adopted the resolutions read at the February meeting and had forwarded copies to the officials mentioned in the communication from Mr. E. E. Ewell.

Mr. Lucien Fogetti addressed the section on the subject, "Fractional Distillation in Vacuo, with a New Form of Receiver." The discussion which followed was quite generally participated in. Following this Mr. Fogetti gave a very interesting account of Dr. Squibb's plant and process for the manufacture of ether and absolute alcohol.

The 76th regular meeting of the Cincinnati Section was held on Saturday evening, April 14th, in the Chemical Lecture Room in Hanna Hall, with Dr. Evans in the chair. Twenty-nine members and visitors were present.

Mr. Robert W. Hochstetter presented the paper of the evening, "Indigo." The methods now used in India for cultivating

the plant and preparing the crude indigo of commerce were described. The more important methods of making synthetic indigo were discussed briefly. Methods of analysis were touched upon, and the paper was concluded by an interesting account of the ways in which indigo is used in dyeing, calico printing, and as a pigment. The paper was well illustrated by specimens of natural and artificial indigo and its products and by materials dyed and printed. FRANK I. SHEPHERD, *Secretary.*

WASHINGTON SECTION.

The 116th regular meeting was held Thursday, February 8, 1900.

The following program was presented :

"The Adulteration of the Arsenical Insecticides," by J. K. Haywood.

"Uncompounded Chemicals under the War Revenue Act (with exhibition of specimens)," by C. A. Crampton and D. Simmons.

"The Relation of the Chemical Society to the Municipality," by Wirt Tassin.

"The Genesis of Hardpan," by F. K. Cameron.

The 117th regular meeting was held Thursday, March 8, 1900.

The program was devoted to a symposium on iron and steel, as follows :

Iron : The raw materials ; chemistry of iron-ore smelting ; cast iron ; properties of iron.

Steel : The raw materials ; converting methods ; the mill ; castings, forgings, and plates ; special steels.

The participants were Messrs. Dewey and Tassin.

The regular meeting was held April 12, 1900.

The first paper was read by Mr. J. K. Haywood, and was entitled "The Analysis of the Arsenical Insecticides." The paper consisted of a comparative study of various methods proposed for the analysis of these preparations.

The second paper of the evening, which was presented by Dr. H. C. Bolton, and entitled "A Claim for Priority," was read by the Secretary.

"The Journal of the American Chemical Society for March, 1900, contains a paper by Joseph W. Richards and Norman S.

Powell, entitled "Substitutes for Hydrochloric Acid in Testing Carbonates;" the authors find that potassium acid sulphate, oxalic acid, citric acid, and tartaric acid can be used in testing carbonates, producing effervescence more or less actively, and they give a table of results. The authors make no reference to previous work on the same lines, and this prompts me to make the claim that about twenty years ago I anticipated all their observations and published the results in periodicals accessible to every one.

"Between 1877 and 1882 I published three memoirs under the title 'Application of Organic Acids to the Examination of Minerals,' in which I showed the action of these acids on 200 mineral species, including carbonates, sulphides, oxides, silicates, and many others. I pointed out the usefulness of citric acid as a substitute for hydrochloric acid in the laboratory and in the field, and showed that by means of it certain minerals could be readily distinguished.

"These papers were printed in whole or in part in the following journals: *Chemical News*, Vols. 35, 36, 43, and 47; *Annals N. Y. Acad. Sciences*, Vols. I and II; *Proceedings American Assoc. Adv. Science*, Vol. 47; *Reports Brit. Assoc. Adv. Science*, Vol. 50; *Mineralogical Mag.*, Vol. IV; *Ber. d. chem. Ges.*, Vol. XIII; and abstracts appeared in many other journals. Moreover the use of citric acid in testing minerals was adopted by teachers in more than one scientific school, the use of potassium acid sulphate having been known long before. Finally Nason's edition of Elderhorst's 'Manual of Qualitative Blowpipe Analysis' (1881) gives a whole chapter to my method.

"It is gratifying to note that the results obtained by Richards and Powell agree well with mine. Coincidences of independent thought often occur, but in publishing a research some acknowledgment of previous work is generally made; had the authors made even a slight examination of familiar literature they would have found that their field of study had been thoroughly traversed."

The third paper was read by Dr. Cameron and was entitled "The Estimation of the Carbonates and Bicarbonates of the Alkalies," by F. K. Cameron and L. J. Briggs.

The last paper was read by Dr. Cameron and was entitled "The Solubility of Calcium Sulphate in Solutions of Other Salts," by F. K. Cameron and F. D. Gardner.

Mr. Chestnut exhibited specimens of plants used by the Indians in California, to stupefy fish which they use for food.

An adjourned meeting was held at Hopkins Hall, Johns Hopkins University, Baltimore, Md., on April 21, 1900.

Dr. Remsen welcomed the Society and explained that the Chemical Department of the University is now undergoing repairs after damage by fire. He gave an interesting account of the work in progress under his direction in the university laboratory.

The first paper of the evening was read by Dr. Simon and was entitled "A Storage Vessel for Solid Carbon Dioxide." The author exhibited an improved vessel, which he had designed, and which is giving universal satisfaction in the transportation of such materials as solid carbon dioxide and liquid air. In connection with the vessel, he exhibited some solid carbon dioxide which had been placed in it the day before and showed that there had been very little loss.

Professor Morse read a paper on the preparation of permanganic acid, in which he discussed various methods and showed that the electrolytic method had been most satisfactory. He described, in detail, the apparatus used for carrying out this method.

Dr. Bolton presented a paper entitled "An Experimental Study of Radio-active Substances." The paper was illustrated with photographs taken with radium light.

The last paper of the evening was read by Dr. F. W. Clarke and was entitled "The Action of Ammonium Chloride on Certain Silicates," by F. W. Clarke and George Steiger.

"A brief outline of the method of decomposition of some zeolites, by heating with ammonium chloride in a sealed tube, was first given.

"It was shown by the experiments that two of the formulas, hitherto given, to scolecite, natrolite, and prehnite, must be abandoned.

"Scolecite and natrolite give almost identical ammonium compounds, calcium having been replaced in the one case and sodium in the other. They also show these two zeolites to be probably salts of orthotrisilicic acid.

"In the case of prehnite the results were quite different, two experiments giving only 0.17 per cent. in one case and 0.22 per cent. in the other of ammonium in the product formed by their treatment. This different action shows that prehnite can no longer be classed with the former two.

"In the case of pectolite the results were so irregular that definite conclusions could not be drawn from the facts at hand. Some figures were given and a formula suggested."

W. H. KRUG, *Secretary.*

Issued with June Number, 1900.

Proceedings.

COUNCIL.

The following resolutions have been approved by council:

WHEREAS, the laws of the several states controlling food adulterations are largely ineffective because of the interference of interstate commerce laws, and can be made effective only through national legislation,

AND WHEREAS, by bills now pending in the congress of the United States and particularly by bills numbered H. R. 9677 and Senate 2426, it is proposed to establish in the United States Department of Agriculture a bureau of chemistry, the director of which shall, under the direction of the secretary of agriculture, be charged with the chemical investigation of the foods produced and consumed throughout the country.

Therefore be it resolved by the Council of the American Chemical Society that the congress of the United States be, and is hereby, urged to promptly enact into law the said bills, namely H. R. 9677, and Senate 2426, and provide adequate facilities for effective prosecution of the provisions of the said bills.

Resolved, further, that a copy of this resolution be forwarded to the president of the United States Senate; to the speaker of the House of Representatives; to the chairman of the Committees on Agriculture and on Commerce and Manufactures of the Senate of the United States; to the chairman of the Committee on Interstate Commerce of the House of Representatives; to the secretary of agriculture, who shall be charged with the enforcement of the provisions of said bills, and to the presiding officers of the various sections of the Society, urging their cooperation in the movement to secure the establishment of the bureau of chemistry, which shall be charged with the scientific and chemical work required in the enforcement of the provisions of the said bills.

NAMES PROPOSED FOR MEMBERSHIP.

Allen, Richard F., Hart Park, West New Brighton, Staten Id., N. Y.
Berolzheimer, Daniel D., 175 E. 79th St., N. Y. City.
Hancock, Wm. J., Erasmus Hall, High School, Brooklyn, N. Y.
Logan, Lily, Howardsville, Va.
Lohmann, Herman J., 90 Monticello Ave., Jersey City, N. J.
Norton, Mrs. Alice P., 47 Hancock St., Auburndale, Mass.
Richards, Alfred N., 437 W. 59th St., N. Y. City.
Stockwell, C. F., Bassett, Nebr.
Sundstrom, Carl, care Solvay Process Co., Detroit, Mich.
Sundstrom, Karl J., Trenton, Wayne Co., Mich.
Taylor, Thomas M., Oberlin, Ohio.
Torrey, Joseph, Jr., 8 Avon St., Cambridge, Mass.
Waddell, John, School of Mines, Kingston, Ont.

NAME PROPOSED FOR ASSOCIATE MEMBERSHIP.

Pretzfeld, Charles J., 1211 Madison Ave., N. Y. City.

NEW MEMBERS ELECTED JUNE 12, 1900.

Ackerman, Franz W., 54 Livingston St., Brooklyn, N. Y.
Ansbacher, Louis A., 4 Murray St., N. Y. City.
Emery, A. L., Palo Alto, Cal.
Frazee, F. H., 416 Concord Ave., Detroit, Mich.
Hartford, James, 100 William St., N. Y. City.
Hartley, Kenneth, Kansas City, Kans.
Hess, Henry W., 1829 Summit Ave., Toledo, O.
Hummel, John A., State Capitol, St. Paul, Minn.
Landis, Edward K., 4025 Spruce St., Philadelphia.
Mather, Henry A., care Verde Queen Copper Co., Jerome, Ariz.
Neumeister, E. J., Alma Sugar Co., Alma, Mich.
Nikaido, Yasajuro, 2375 O St., Lincoln, Nebr.
Russell, Herman, 721 E. Ann St., Ann Arbor, Mich.
Schnierwind, F., United Coke and Gas Co., 36 Wall St., N. Y. City.
Soper, George A., 251 W. 93rd St., N. Y. City.
Van Riper, George B., Rutherford, N. J.

ASSOCIATES ELECTED JUNE 12, 1900.

Eccles, David C., 191 Dean St., Brooklyn, N. Y.
Kiehn, John F., 3631 S. Winchester Ave., Chicago, Ill.
Stierlin, E., 1110 Queen City Ave., Cincinnati, O.

CHANGES OF ADDRESS.

Ashley, Harrison E., 947 Acushnet Ave., New Bedford, Mass.
Bevier, Miss Isabel, Plymouth, Ohio.
Brewer, Chas. E., Wake Forest, N. C.
Clark, Clara, 201 N. Jackson St., Butte, Mont.
Dailey, J. Glanding, 327 Wharton St., Philadelphia, Pa.
Fosdick, E. H., 1505 S. Grand Ave., Los Angeles, Cal.
Jackson, Daniel D., 179 Sixth Ave., Brooklyn, N. Y.
Johnson, Treat B., 57 Otis St., E. Cambridge, Boston, Mass.
Labonde, Dr. Leon, 3601 S. Hower St., Los Angeles, Cal.
McIlhiney, P. C., 145 E. 23d St., N. Y. City.
Perkins, T. S., care California Tartar Co., 318 Front St., San Francisco, Cal.
Phalen, Wm. C., 13 Sadler St., Gloucester, Mass.
Phillips, Wm. D., 128 Pearl St., N. Y. City.
Richardson, Clifford, care N. Y. Testing Lab., Long Island City, N. Y.
Schüpphaus, Robert C., 174 Broadway, N. Y. City.
Skinner, Hewey J., care General Chem. Co., Moro Phillips Works, Camden, N. J.
Tuschka, Otto, care Seamon Lab., El Paso, Texas.
Willard, H. H., Union City, Mich.
Willey, Ogden G., Box 179, Berwyn, Ill.

MEETINGS OF THE SECTIONS.

CHICAGO SECTION.

The 34th regular meeting of the Chicago Section was held at the Union Restaurant, May 11, 1900.

Prof. W. A. Noyes, of the Rose Polytechnic Institute, gave a paper on the constitution of camphor, showing how the problem had been attacked and the evidence for the formula now assigned.

Dr. J. H. Long was elected member of the council from the Chicago Section.

F. B. DAINS, *Secretary.*

NEW YORK SECTION.

The May meeting was held on the 12th, at the Chemists' Club, as usual, Dr. C. F. McKenna presiding. The following papers were read:

C. W. Volney: "New Extraction Apparatus."

C. W. Volney: "Artifical Musk."

P. A. Levene: "Modern Researches on the Chemistry of the Proteid Molecule."

J. A. Mathews: "Cobalticyanides of Bismuth."

Dr. Volney's artificial musk was exhibited and caused considerable discussion. It is said to be a compound belonging to the paraffin series, and therefore is a distinct departure from the idea that an artificial perfume must contain the "benzol ring." No analysis was given nor particulars of the method of preparation, these being reserved for a future communication. Asked whether his musk is composed of a saturated or unsaturated paraffin compound, Dr. Volney said that it is saturated. Dr. Schweitzer said that so far as he knew, it had never been claimed that an aromatic group was necessary in the synthetic musks. Dr. Stearns claims that nitrated bodies do not smell of true musk. Different persons, he said, are differently affected by the true musk odor, and many are incapable of deciding that an imitation is a good representative of the true flavor. In this way many substances were called artificial musk which would not pass even an arbitrary set of tests. It is not yet known what the essential element of true musk is, or whether it is preexistent, or is formed by a slow chemical change in the constituents of musk material. Baur has examined musk to determine whether nitrated bodies were present, but found none.

Dr. Levene's paper was an interesting review of the work which has been done and the views which have been held during the past two years on the chemistry of the protein compounds and the classifications of their constituents. In regard to the sulphur in their composition, he said it evidently existed in two forms or conditions of combination, one molecule being separable as hydrogen sulphide, the other remaining.

Dr. J. A. Mathews described an investigation of the cobalticyanides of bismuth designed to develop a process for separation of bismuth in analytical work—for instance, in the analysis of pig and refined lead. The conditions under which such an analysis is carried out were found, however, to prevent the complete precipitation of bismuth as cobalticyanide, and as yet he had not been able to make the practical application of the study of these salts which had been hoped for.

The meeting was addressed by Prof. Rising, of California, who said that much interest was manifested by the chemists of the Pacific coast in becoming members of the American Chemical

Society, and an application for a charter would soon be made.

Dr. McMurtrie, president of the Society, was present, and, invited to take the chair, said that in view of the approaching general meeting it was necessary that each member should bring out whatever subject he had in readiness for publication in time to have its title announced on the program. All such titles should be transmitted to the general secretary, A. C. Hale, 551 Putnam Ave., Brooklyn, N. Y., as early as practicable, to facilitate the preparation of the program and to enable the committee to arrange sufficient time for the sessions. Dr. Doremus announced the full list of sections, and ground covered thereby, in the congress of chemists to be held at Paris in July—also that titles of papers to be presented there should be forwarded not later than June 1.

The chairman referred to the special exhibition-reception meeting held on the 2nd inst. in the Assembly Room of the club, and suggested a vote of thanks to those who had assisted in making it a success. On motion, a vote of thanks was seconded and carried unanimously: to Dr. Elwyn Waller for the handsome roses sent from his greenhouses to decorate the tables; to the firms who made special exhibits of apparatus, minerals, and chemical products; and to Dr. E. E. Smith and his committee for their arduous labor in arranging the details of catalogue, printing, etc.

The June meeting of the New York Section of the American Chemical Society was held on the 8th inst. at the Chemists' Club. The retiring chairman, Dr. Chas. F. McKenna, invited the president of the Society, Dr. William McMurtrie, to preside. An address was made by Dr. McKenna on the "Advancement in the Study of the Properties of the Metals," and on the "Present and Future of the New York Section of the American Chemical Society."

The election of officers for the ensuing year resulted as follows: *Chairman*, Dr. C. A. Doremus; *Secretary and Treasurer*, Durand Woodman; *Executive Committee*, C. F. McKenna, M. T. Bogert, and P. C. McIlhiney.

The following papers were then read:

"Comparison of Iodine and Bromine Figures of Various Fatty Oils," by H. T. Vulté and Lily Logan.

"The Chemistry of Materials used in Perfumery and Kindred Arts," by T. C. Stearns.

"Rapid Method for Separation of Cadmium, Bismuth, etc., from Zinc and Manganese," by Geo. C. Stone.

"On the Oxidation of Platinum," by Dr. R. C. Hall.

A motion was made and seconded that a fund should be raised for a prize for the best paper read before the Society during each season. This was in pursuance of a suggestion made by the chairman in his address.

Notice was given of the general meeting of the American Chemical Society, to be held in the latter part of the month, after which the Section adjourned.

DURAND WOODMAN, *Secretary.*

Issued with the July Number.

Proceedings.

COUNCIL.

The following resolution was approved by Council, June 15, 1900:

"*Resolved*, That the President of the American Chemical Society is hereby authorized and directed to appoint a committee, of which he himself shall be Chairman, with power to confer and to make arrangements with Section C, with any officers or committees of the American Association for the Advancement of Science, and with other organizations affiliated with the American Association for the Advancement of Science, for future summer meetings of the American Chemical Society and Section C."

NAMES PROPOSED FOR MEMBERSHIP.

Bolling, Randolph, Va. I. C. & C. Co., Radford Blast Furnace, Radford, Va.

Brown, Walter B., care Nelson Morris & Co., U. S. Yards, Chicago, Ill.

Cabot, Samuel, 70 Kilby St., Boston, Mass.

Diehl, Oscar C., care Parke, Davis & Co., Detroit, Mich.

Hall, Everett J., Passaic, N. J.

Hillyer, Homer W., Madison, Wis.

Kniffen, Frederick, Indian Head, Md.

Lucas, Alfred, Survey Dept., Public Works Ministry, Cairo, Egypt.

Lyons, Philip D., Md. Steel Co., Sparrows Point, Md.

Nathan, Albert F., 603 Mumford Court, Kansas City, Mo.

Reid, E. Emmet, College of Charleston, Charleston, S. C.

Root, W. W., 186 Eugenie St., Chicago, Ill.

Sears, Frederick E., St. Paul's School, Concord, N. H.

Seward, George O., Holcomb Rock, Va.

Walker, Claude F., Calumet, Mich.
Wiley, Walter B., Bramwell, W. Va.
Willcox, Frank A., Oakland, Bergen Co., N. J.

NAMES PROPOSED FOR ASSOCIATE MEMBERSHIP.

Calvert, Joseph E., Etna, Allegheny Co., Pa.
Condit, Louis C., 139 Lafayette Ave., Brooklyn, N. Y.
Kohnstamm, Lothair S., 133 E. 71st St., New York City.
Thomas, T. Lewis, 71 Broadway, New York City.
Warren, Robert, S. 6th St., Terre Haute, Ind.

CHANGES OF ADDRESS.

Archibald, Eben H., Harmony, Colchester Co., Nova Scotia.
Arnold, Fred. N., care The N. K. Fairbank Co., St. Louis, Mo.
Arnott, G. W. Campbell, 26 Broadway, New York City.
Beach, W. M., 954 W. North Ave., Allegheny, Pa.
Behr, Gustave E., Jr., Harvard Univ., Cambridge, Mass.
Bevier, Miss Isabel, Univ. of Ill., Champaign, Ill.
Browne, Charles A., Jr., Univ. of Goettingen, Goettingen, Germany.
Burk, W. E., Male High School, Louisville, Ky.
Burn, Harry, care Sloss-Sheffield S. & I. Co., Birmingham, Ala.
Campbell, Archibald, 3140 Duwell Ave., Walnut Hills, Cincinnati, Ohio.
Campbell, George F., 82 Broadway, New Haven, Conn.
Cayvan, L. L., 499 Adams St., Chicago, Ill.
Coutie, William, 2129 7th Ave., Troy, N. Y.
Craig, A. G., 6112 Station St., Pittsburg, Pa.
Davis, Charles B., care Dr. Wyatt, 39 S. William St., New York City.
Davison, John M., 340 Oxford St., Rochester, N. Y.
Dorr, John V. N., Golden Gate M. & M. Co., Deadwood, S. D.
Downey, James E., High School, Holyoke, Mass.
Dustin, Guy K., 30 Lenango St., Binghamton, N. Y.
Ellis, Carleton, 195 Winchester St., Keene, N. H.
Ellis, Geo. H., 163 Randolph St., Chicago, Ill.
Fischer, Robert, 810 Franklin Ave., Columbus, O.
Gallivan, F. B., 56 Prospect Place, Brooklyn, N. Y.
Garrigues, W. E., 1123 Broadway, New York City.
Given, Arthur, 1 Plymton St., Worcester, Mass.
Hall, Robert W., University Heights, Bronx, N. Y. City.
Hamilton, Louis P., 222 E. Beaux St., Washington, Pa.
Hodges, G. C., Box 88, New Hartford, N. Y.

Horsford, Roger F., care Am. Bell Telephone Co., 125 Milk St. Boston, Mass

Isaacs, A. S., 1214 Sheffield St., Allegheny, Pa.

Keller, A. C., Apartado A., Aguascalientes, Mexico.

Kittredge, Harvey G., The Kay and Ess. Co., Dayton, O.

Krug, W. H., Div. of Chem., U. S. Dept. of Agr., Washington, D. C.

Levine, Edmund J., 337 W. 88th St., New York City.

Lippincott, Warren B., Am. S. & R. Co., Argentine, Kas.

Lythgoe, H. C., Room 501, State House, Boston, Mass.

Mabery, C. F., North Gorham, Me.

Mathewson, E. P., Establacimiente del Playa Blanca, Antofogasta, Chili, S. C.

Mixer, C. T., Joplin, Mo.

Murrill, Paul, Hickory, N. C.

Parker, T. J., care General Chem. Co., 32 Liberty St., New York City.

Parmelee, H. C., 1733 High St., Denver Colo.

Porter John J., Observatory Ave., Hyde Park, Cleveland, O.

Redding, Allen C., Golconda Mine, Sumpter, Ore.

Reese, H. J., Livingston, Mont.

Richardson, Clifford, Director N. Y. Testing Lab., Long Island City, N. Y.

Rickards, Burt R., 162 Salem St., Malden, Mass.

Ritchey, Joseph C., Nat. Steel Co., Mingo Junction, O.

Rosell, Claude A. O., 268 W. Broadway, New York City.

Sanborn, E. R., care Alice Furnace, Sharpsville, Pa.

Smith, A. L., 653 Union Ave., Englewood, Ill.

Soper, G. A., 29 Broadway, New York City.

Sticht, Gustave A. H., care Tartar Chem. Co., Jersey City, N. J.

Stone, Geo. C., 115 Broadway, New York City.

Syme, Wm. A., cor. North and Person Sts., Raleigh, N. C.

Thomas, N. Wiley, Rooms 330–332, City Hall, Philadelphia, Pa.

Torrey, Henry A., 75 S. Prospect St., Burlington, Vt.

Touceda, Enrique, Room 44, 51 State St., Albany, N. Y.

Wilder, S. W., Jr., 77 Broad St., Boston, Mass.

Worstall, R. A., 1246 E. Madison Ave., Cleveland, O.

ADDRESS WANTED.

Stursberg, J. A., formerly of 18 E. 67th St., N. Y. City.

MEETINGS OF THE SECTIONS.

WASHINGTON SECTION.

The regular meeting was held May 10th.

Mr. Edwin A. Hill presented a paper entitled "On a System of Chemical Indexing Adopted by the Classification Division of the U. S. Patent Office."

WILLIAM H. KRUG, *Secretary.*

Issued with August Number, 1900.

Proceedings.

TWENTY-FIRST GENERAL MEETING.

The Twenty-first General Meeting of the American Chemical Society was called to order at 12.35 P.M., Monday, June 25, 1900, in Room 309, Havemeyer Hall, Columbia University, New York City.

The president introduced Dr. Charles F. McKenna, chairman of the New York Section, who addressed a few words of welcome to the visiting chemists.

Responses were made by Prof. Jas. Lewis Howe, on behalf of Section C of the American Association for the Advancement of Science, and Dr. Wm. McMurtrie, on behalf of the American Chemical Society.

After a few announcements, the meeting was adjourned till 2 P.M.

Afternoon Session.—At 2 P.M. the Society was called to order again and the minutes of the last general meeting as already printed in the Journal were approved.

A paper on "The Composition of Abietic Acid" was read in abstract by the author, Hermann A. Loos.

Mr. Marston Taylor Bogert read a paper on "Experiments with Some Substituted Benzoic Acids and their Nitriles," prepared by himself and August H. Gotthelf. This was followed by two other papers by the same authors, the titles of the papers being "The Direct Synthesis of Ketodihydroquinazolines from Orthoamido Nitriles" and "The Direct Synthesis of Ketodihydroquinazolines from Orthoamido Acids."

A paper "On Some Derivatives of Phenyl Ether," by H. W.

Hillyer, was read by the author, after which the session adjourned.

A meeting of the Council of the Society was held in Room 311, Havemeyer Hall, at 4.15 P.M. At 8 P.M. the chemists enjoyed a "Smoker" at the Chemists' Club, 108 W. 55th St., given by the New York Section of the Society.

TUESDAY, JUNE 26, 1900.

Forenoon Session.—The morning session was called to order at 10.40 A.M. in the Assembly Hall of the Chemists' Club. Mr. T. J. Parker, vice-president of the Club, was introduced by the president, and welcomed the chemists in a few words.

A paper on "The Metric System, Past, Present, and Prospective," was presented by Rufus P. Williams, and discussed by Messrs. Parker, Seaman, and Hillebrand, the last of whom offered the following resolution:

Resolved, That this Society is strongly in favor of the passage of H. R. Bill 104, looking to the adoption and use of the Metric System, and that the secretary be instructed to so inform the Chairman of the Committee on Coinage, Weights, and Measures of the House of Representatives in Washington.

This was referred without debate to the Council for consideration and report at the December meeting as to the advisability of the Society adopting it.

A paper on "The Reduction Products of Dehydromucic Acid" was read by A. S. Wheeler and discussed by W. A. Noyes. The following papers were then presented by their authors:

"The Detection of Coal-tar Dyes in Food Products," by A. L. Winton.

"Estimation of Fat in Sweetened Condensed Milk," by Joseph F. Geisler.

"Some Analyses of Milk and Cream, with Reference to the Condition of Fat Globules," by H. C. Sherman.

"The Action of Various Preservatives upon Cider," by E. H. S. Bailey.

"The Determination of the Formulas of the Hydrocarbons and Chlorine Derivatives in Pennsylvania, California, Japanese

and Canadian Petroleum by Molecular Refraction," by Charles F. Mabery and O. J. Sieplein.

"The Sulphur Compounds and their Oxidation Products and the Unsaturated Hydrocarbons in Canadian Petroleum," by Charles F. Mabery and W. O. Quayle.

"Composition of the Hydrocarbons in Pennsylvania Petroleum, Liquids and Solids above 216°," by Charles F. Mabery.

"Composition of the Hydrocarbons in California Petroleum, Liquids and Solids," by Charles F. Mabery.

"Composition of the Nitrogen Compounds in California Petroleum," by Charles F. Mabery.

"The Chlorine Derivatives of the Hydrocarbons in California Petroleum," by Charles F. Mabery and O. J. Sieplein.

The meeting was then adjourned till 2.30 P.M.

Afternoon Session.—The afternoon session was called to order at 2.30 P.M. at the Chemists' Club.

The secretary called attention to the death of Mrs. Rachel Lloyd, a former member of the Society, and moved that Dr. C. F. Mabery be requested to prepare a suitable memorial to be printed in the Journal. The motion was passed unanimously.

The committee appointed to prepare a memorial on the late Professor Bunsen presented its report by title. The report was referred to the Committee on Papers and Publications.

After some announcements the following papers were read:

"Experimental Demonstration of the Manufacture of Sulphuric Acid" (by the Contact Process), by Charles L. Reese and G. C. Stone.

"Production of Caustic Soda and Bleaching-powder by Electrolysis," by Hugh K. Moore.

"The Incubator Test for Determining the Purity of Sewage Effluents," by Leonard P. Kinnicutt.

"Bacterial Action in the Purification of Sewage by Chemicals," by Leonard P. Kinnicutt.

"An Experimental Study of the Gas-producing Power of *Bacillus Coli Communis* under Different Conditions of Environment," by Mary Engle Pennington and G. C. Küsel. This paper was read by Dr. Pennington and discussed by Messrs. Harper and Doremus.

The secretary moved that Professor Edward W. Morley, of Cleveland, Ohio, and Professor Wilhelm Ostwald, of Leipzig, Germany, be elected honorary members of the Society. The motion was adopted unanimously.

After the reading of a "Note on the Landsberger-McCoy Apparatus," by W. D. Bancroft, and a paper on "The Action of Potassium Hydroxide on Chloroform," by A. P. Saunders, read by Prof. Bancroft, and some announcements, the Twenty-first General Meeting of the Society was adjourned *sine die*.

WEDNESDAY.

At 7 P.M. on Wednesday, June 27, the chemists enjoyed a dinner at Hotel Majestic. On account of the unpromising weather the dinner was in the dining hall of the hotel, instead of being upon the roof garden as had been contemplated.

Dr. Charles F. McKenna presided and acted as toast-master.

Toasts were responded to by President William McMurtrie, Prof. L. O. Howard, permanent secretary of the A.A.A.S., Prof. Jas. Lewis Howe, vice-president A. A. A. S., Section C, Dr. Mary Engle Pennington, Prof. Elihu Thomson, Dr. Charles Baskerville, Prof. B. W. Kilgore, and Dr. L. P. Kinnicutt.

ALBERT C. HALE, *Secretary*.

BOARD OF DIRECTORS.

The Board of Directors of the American Chemical Society met at the Chemists' Club, New York City, at 9.45 P.M., June 25, 1900. There were present Messrs. McMurtrie, Hale, Hallock, Doremus, and Smith.

The sum of fifty dollars, or so much thereof as may be necessary, was appropriated from funds of the Society not otherwise appropriated for the purpose of preparing a card catalogue for the library.

The librarian was authorized to expend a sum not exceeding twenty-five dollars for new shelving for the library.

The sum of fifteen dollars and fifty-five cents was appropriated to reimburse the expenses of the president in going to Washington to appear before the Committee of Congress upon the question of establishing a National Standards Bureau.

The president of the Society was authorized to take from the library temporarily such material as he may wish to use in preparing a review of the progress of industrial chemistry.

It was ordered that the insurance on the library be kept sufficient to cover the current stock of Journals on hand from time to time.

The Board then adjourned.

ALBERT C. HALE, *Secretary.*

COUNCIL.

A meeting of the Council of the American Chemical Society was held in Room 311, Havemeyer Hall, Columbia University, New York City, at 4.15 P.M., Monday, June 25, 1900.

There were present Messrs. McMurtrie, Catlin, Doremus, Hale, Hallock, Hart, Hillebrand, Kinnicutt, Long, Mabery, Mathews, McPherson, Munroe, A. A. Noyes, W. A. Noyes, E. E. Smith, and Venable.

The minutes of the December meeting, as already printed in the Journal, were approved.

The president gave a brief review of the present condition and needs of the Society, after which the following resolution was adopted:

Resolved, That Sections (1) and (2) of the Finance Committee's report as adopted at the last general meeting of the Society be amended to read as follows:

(1) Before December 15 of each year, each officer of the Society shall submit to the president a schedule comprising the estimated expenses of his office, in detail, for the ensuing year. The president shall, in advance of the annual meeting, submit these estimates to a Committee on Estimates, consisting of the Finance Committee, the president, the secretary, and the treasurer, who shall consider them in the relation to the probable income of the Society for the ensuing year, and report the result of their deliberations, together with the original estimates, with recommendations of appropriations to the Council at the annual meeting.

(2) After such report shall have been submitted, the Council shall recommend such appropriations for

each office as may be deemed advisable, and the Directors shall, upon such recommendation from the Council, make necessary appropriations in accordance therewith.

After some discussion regarding the question of apportionment of the funds of the Society for the benefit of Local Sections, the following motion, presented by W. A. Noyes, was adopted:

Resolved, That the Council recommends that the Local Sections be requested to keep their expenses as low as they deem consistent with the best interests of the Society in their locality; also that they be requested not to draw funds from the treasury except as required for the payment of bills.

On motion of Dr. Mabery, this motion was reconsidered, and, after some discussion, again passed by the Council.

The following resolutions were also passed:

Resolved, That the president of the Society be authorized and directed to appoint a committee, of which he himself shall be chairman, with power to arrange for the celebration of the twenty-fifth anniversary of the foundation of the Society, which will occur on April 6, 1901, in conformity with the action taken by the Council upon that subject at the last general meeting of the Society.

Resolved, That the president of the Society appoint a committee of five, of which he himself shall be one, with power to make a new contract for the printing of the Journal of the Society.

The following named gentlemen were appointed to constitute the Committee on Contract: Messrs. McMurtrie, C. B. Dudley, M. L. Griffin, A. D. Little, and H. N. Stokes.

The following communication from the librarian was read by the secretary and ordered to be included in the minutes of the Council, and printed in the Journal:

NEW YORK, June 23, 1900.

Dr. Wm. McMurtrie, President American Chemical Society:

DEAR SIR: I submit the following statement in response to a resolution of the Board of Directors of the Society "that the librarian be requested to furnish to the Board of Directors a survey of the sets of the Journal now the property of the Society that the same may be scheduled for use."

There have been 10 issues of the Proceedings and 216 issues of the Journal.

There are at present in the custody of the librarian 3,672 copies of the Proceedings, and 44,756 copies of the Journal, or a total of 48,428 copies. These are stored as follows:

Proceedings in Garfield Storage	3,213	
" at Chemists' Club.....	459	
		3,672
Journals in Garfield Storage	33,257	
" at Chemists' Club	11,499	
		44,756
Total Proceedings and Journals...		48,428

These figures so far as they refer to the material in the Garfield Storage Warehouse are based on an inventory furnished me by a former librarian.

Of the Proceedings, No. 5 of Vol. II is out of print, but of the other issues the number of copies ranges from 100 in the case of Vol. I, No. 1, to 672 in that of Vol. II, No. 2.

The issues of the Journal of which we have less than 50 copies each are as follows:

	Copies.
Vol. III, single number 1–6.....	38
" " number 7.....	35
" " single number 8–12	25
" IV, number 12	48
" V, single number 2–3.....	48
" VI, " " 1–2.....	26
" " number 3.....	18
" " " 4	30
" XVII, number 10	34
" XVIII, " 6	43
" XX, " 3	42

Or there are 11 issues of which we have less than 50 copies each. In addition to these there are:

31 issues of which we have from 50 to 100 copies each.
132 " " " " " " 100 to 250 " "
24 " " " " " " 250 to 500 " "
18 " " " " " over 500 copies each.

It appears, therefore, that at the present time we can not furnish a set of the Proceedings, and can furnish only eighteen sets

of the Journal. In view of this fact, I would suggest that at least ten sets of the Journal be reserved to be sold only in sets.

It will be noticed from the foregoing statement that nearly one-fourth of our entire stock of Proceedings and Journals is stored at the Chemists' Club in 55th St. The library is covered by insurance, but so far as I know the stock of Journals is not. I would suggest that a special policy be taken out, the amount of which shall be increased monthly or bimonthly by a sum sufficient to cover the issues received in the meantime, less those disposed of.

The stock of Journals stored at the Chemists' Club is deposited in a room which the librarians of the Society have simply appropriated without any action on the part of the Trustees of the club granting the use of such room. The club may at any time require this space, in which event it would be necessary for the librarian to find other storage for these Journals. I would therefore recommend that the Council be requested to take such action as may be necessary either to rent from the club the room at present used by the Society, or to procure storage elsewhere. The space available in this room will probably answer our requirements for two or three years, at the end of which time our supply of certain issues will doubtless be so much reduced as to make it necessary for the Society to determine whether the present policy of carrying a stock of each issue, with the necessity of reissuing certain numbers from time to time, be continued, or whether it may not be advisable to abandon the present plan, and to supply the Journals only so long as the first issue lasts.

Yours truly,

E. G. LOVE, *Librarian.*

It was ordered that the eighteen sets of the Journal now available be reserved to sell intact as sets.

The matter of the storage of the numbers of the Journal was referred to the committee authorized to make a new contract for printing the Journal.

The following motions with reference to the library were adopted:

Resolved, That a card catalogue of the library be prepared

under the direction of the librarian as soon as the work can be conveniently accomplished, and that the Directors be requested to appropriate for such purpose the sum of fifty dollars, or so much thereof as may be necessary, from funds of the Society not otherwise appropriated.

Resolved, That the Directors be requested to appropriate a sum not exceeding twenty-five dollars to furnish new shelving for the library.

Resolved, That a committee, consisting of the librarian and two other members of the Society, be appointed with power to eliminate useless matter from the library.

Upon motion of Dr. Hart, the Committee on Abstracts was discharged. The following resolution was then presented and adopted:

Resolved, That a committee of five be appointed by the chair to report at the annual meeting upon the advisability of preparing a title index of papers for the Journal.

The following motion was adopted:

Moved, That all nominees to membership up to the close of this meeting be considered as acted upon by the Council, and the secretary shall declare them elected whenever all the other requirements of the constitution in regard to them as nominees shall have been met.

A communication from Mr. Ewell, chairman of the Committee on Standards for Instruments of Measure, was presented, showing briefly what that committee has already accomplished.

Prof. John H. Long presented a communication from the Chicago Local Section inviting the Society to hold its winter meeting in Chicago. He most heartily urged the acceptance of the invitation which was renewed this year, and showed that while Chicago acquiesced last year in the decision that it was best for the Society to hold its winter meeting then in New Haven, yet this year he hoped that nothing would prevent the acceptance of the invitation, which was cordially renewed for the winter of 1900.

Upon motion, it was resolved that the cordial invitation extended by the Chicago Section to hold the next general meeting in the city of Chicago be and the same is hereby accepted with much pleasure. It was also resolved that the meeting be held

during the last week in December, and that the exact date for the meeting be fixed by the president and secretary.

After some discussion regarding qualifications for membership, it was voted that the Committee on Membership be requested to adopt a more liberal interpretation of that portion of the constitution which treats of this subject.

After some discussion of some other matters, upon which no action was taken, the Council adjourned.

ALBERT C. HALE, *Secretary*.

COMMITTEE ON TWENTY-FIFTH ANNIVERSARY.

Wm. McMurtrie, *Chairman*.
Albert C. Hale, *Secretary*.

H. C. Bolton,
C. L. Jackson,
J. H. Long,
Charles Baskerville,
W. L. Dudley,
H. H. Nicholson,
W. B. Rising,
W. P. Mason,
G. F. Barker,
J. W. Mallet,
Jas. Lewis Howe,
A. A. Noyes,
C. E. Munroe,
C. F. Chandler,
S. W. Johnson,
A. B. Prescott,
Ira Remsen,
E. W. Morley,
C. B. Dudley,
C. A. Goessmann,
Henry Morton,
C. A. Doremus,
J. H. Appleton.

COMMITTEE TO ELIMINATE USELESS MATTER FROM LIBRARY.

E. G. Love,
E. E. Smith,
A. P. Hallock.

COMMITTEE ON TITLE INDEX.

Wm. McMurtrie,
W. A. Noyes,
A. A. Noyes,
C. F. Mabery,
C. E. Munroe.

NAMES PROPOSED FOR MEMBERSHIP.

Clark, Alfred N., Agricultural College, Mich.
Harrington, Charles, Harvard Med. School, Boston, Mass.
Harris, Isaac F., Chapel Hill, N. C.
Jürgensen, Dr. Rolof, care of Dr. Jürgensen and Bauschlicher, Techn.-Bureau für die Chem.-Industrie, Prag-Zizkov, Austria.

Shepard, C. H., Pinole, Contra Costa Co., Cal.
Smith, Lyman G., Roxbury High School, Warren St., Boston, Mass.
Smith, Thorn, Isabella, Polk Co., Tenn.
Wainwright, John W., 177 W. 83rd St., N. Y. City.
Young, Clare C., 518 Alvarado, Los Angeles, Cal.

NAME PROPOSED FOR ASSOCIATE MEMBERSHIP.

Medcalf, George T., Box 280, Eureka, Humboldt Co., Cal.

NEW MEMBERS ELECTED JUNE 26, 1900.

Allen, Richard F., Hart Park, West New Brighton, S. I., N.Y.
Hancock, Wm. J., Erasmus Hall High School, Brooklyn, N.Y.
Logan, Lily, Howardsville, Va.
Norton, (Mrs.) Alice P., 47 Hancock St., Auburndale, Mass.
Richards, Alfred N., 437 W. 59th St., N. Y. City.
Sundstrom, Carl, Solvay Process Co., Detroit, Mich.
Sundstrom, Karl J., Trenton, Mich.
Taylor, Thomas M., Oberlin, O.
Torrey, Joseph, Jr., 8 Avon St., Cambridge, Mass.
Waddell, John, School of Mining, Kingston, Ontario.

ASSOCIATES ELECTED JUNE 26, 1900.

Pretzfeld, Chas. J., 1211 Madison Ave., N. Y. City.

NEW MEMBERS ELECTED JULY 20.

Bolling, Randolph, V. I. C. & C. Co., Radford Blast Furnace, Radford, Va.
Brown, Walter B., Nelson Morris & Co., U. S. Yards, Chicago, Ill.
Diehl, Oscar C., Parke, Davis & Co., Detroit, Mich.
Hall, Everett, J., Passaic, N. J.
Hillyer, Homer W., Madison, Wis.
Kniffen, Frederick, Indian Head, Ind.
Lucas, Alfred, Survey Dept., Public Works Ministry, Cairo, Egypt.
Lyons, Philip D., Md. Steel Co., Sparrows Point, Md.
Nathan, Albert F., 603 Mumford Court, Kansas City, Mo.
Reid, E. Emmet, College of Charleston, Charleston, S. C.
Root, W. W., 186 Eugenie St., Chicago, Ill.
Sears, Frederick S., St. Paul's School, Concord, N. H.
Seward, George O., Holcomb Rock, Va.

Walker, Claude F., Calumet, Mich.
Wiley, Walter B., Bramwell, W. Va.
Willcox, Frank A., Oakland, Bergen Co., N. J.

ASSOCIATES ELECTED JULY 20, 1900.

Calvert, Joseph E., Etna, Allegheny Co., Pa.
Condit, Louis C., 139 Lafayette Ave., Brooklyn, N. Y.
Kohnstamm, Lothair S., 133 E. 71st St., N. Y. City.
Thomas, T. Lewis, 71 Broadway, N. Y. City.
Warren, Robert, S. 6th St., Terre Haute, Ind.

CHANGES OF ADDRESS.

Archibald, E. H., Harmony, Colchester Co., Nova Scotia.
Enright, Bernard, 330 E. 4th St., So. Bethlehem, Pa.
Johnson, Treat B., Westville, Conn.
Langmuir, A. C., care of Mark & Rawolle, 9 Van Brunt St., Brooklyn, N. Y.
Lipman, J. G., Woodbine, N. J.
Quinan, W. R., Guardian Bldg, Cape Town, So. Africa.
Rising, H. R., 39 S. 10th St., Newark, N. J.
Rolfe, Geo. W., 1 Cleveland St., Cambridge, Mass.
Scherr, E. W., 230 W. 113th St., New York City.
Shorey, Edmund C., Box 360, Honolulu, H. I.
Walker, Percy H., 416 McClury St., Huntsville, Ala.

Issued with September Number, 1900.

Proceedings.

COUNCIL.

NAMES PROPOSED FOR MEMBERSHIP.

Hegeman, John W., 102 Barbey St., Brooklyn, N. Y.
Hooper, Everett D., 10 Studio Building, Boston, Mass.
Porter, Horace C., 902 Locust St., Kansas City, Mo.

CHANGES OF ADDRESS.

Enright, Bernard, 330 E. 4th St., South Bethlehem, Pa.
Goldstein, Harris, care J. W. Preston, Tyler St., Depew, N. Y.
Hibbard, P. L., 525 Clayton St., Waukegan, Ill.
Kendall, E. Dwight, 1109 Park Pl., Brooklyn, N. Y.
Leach, Miss Mary F., 74 Pitcher St., Detroit, Mich.
Lenher, Victor, Univ. of Wis., Madison, Wis.
Stursberg, J. A., care W. Stursberg, Schell & Co., 79–81 Leonard St., N. Y. City.
Thompson, Firman, New Carlisle, O.
Wolfe, J. V., Pekin, Ill.

ADDRESS WANTED.

Welt, Miss Ida, formerly of 814 Lexington Ave., N. Y. City.

MEETINGS OF THE SECTIONS.

RHODE ISLAND SECTION.

The annual meeting of the Rhode Island Section of the American Chemical Society was held June 13, 1900, at Kingston, R. I.

The Section was entertained by Dr. J. H. Washburn, president of the Rhode Island College of Agricultural and Mechanical Arts.

The following officers of the Section were elected for the year 1900–1901 :

Presiding Officer, Walter M. Saunders ; Secretary and Treasurer, Walter E. Smith ; Member of the Executive Committee, Charles M. Perry.

WALTER E. SMITH, *Secretary.*

Issued with October Number, 1900.

Proceedings.

COUNCIL.

NAMES PROPOSED FOR MEMBERSHIP.

Hicks, Walter T., 300 S. Broadway, Los Angeles, Cal.
Johnson, Charles M., 701 Orchard St., Avalon, Pa.
Rademacher, Hermann A., Box 243, Lawrence, Mass.
Rogers, Herbert F., Provident Chem. Wks., St. Louis, Mo.
Vosburgh, C. H., High School, Jamaica.

NEW MEMBERS ELECTED AUGUST 24, 1900.

Harrington, Charles, Harvard Med. School, Boston, Mass.
Harris, Isaac F., Chapel Hill, N. C.
Jürgensen, Dr. Rolof, care Dr. Jürgensen and Bauschlicher, Tech.-Bureau für die Chem.-Industrie, Prag-Zizkov, Austria.
Shepard, C. H., Pinole, Contra Costa Co., Cal.
Smith, Lyman, G., Roxbury High School, Warren St., Boston, Mass.
Smith, Thorn, Isabella, Polk Co., Tenn.
Wainwright, John W., M.D., 177 W. 83rd St., N. Y. City.
Young, Clare C., 518 Alvarado, Los Angeles, Cal.

ASSOCIATE ELECTED AUGUST 24, 1900.

Medcalf, Geo. T., Box 280, Eureka, Humboldt Co., Cal.

CHANGES OF ADDRESS.

Adams, Maxwell, 5815 Drexel Ave., Chicago, Ill.
Best, Otto, Bay & Dupont Sts , San Francisco, Cal.
Brown, H. F., Int. Sm. Powder & Dynamite Co., South Amboy, N. J.
Culmann, Julius, 400 W. 153rd St., N. Y. City.
Dailey, J. Glanding, care Ledoux & Co., 99 John St., N. Y. City.
Goldstein, Harris, 228 Henry St., N. Y. City.
Grabfield, Jos. P., Medinah Temple, cor. Jackson and 5th Ave., Chicago, Ill.
Hummel, John A., Agr. Expt. Sta., St. Anthony Park, Minn.

Kendall, Robert E., 46 Maple St., Glens Falls, N. Y.
Loeser, R. M., Palo Alto, Cal.
Mabery, C. F., 57 Adelbert St., Cleveland, O.
Moyer, J. Bird, 5116 Arch St., Philadelphia, Pa.
McKenzie, R. Monroe, Rahway, N. J.
Peppel, S. V., 169 King Ave., Columbus, Ohio.
Phalen, W. C., Socorro, N. M.
Sovereign, C. L., Glucose Sugar Ref. Co., Davenport, Iowa.
Tucker, Chas. W., Grant & Farragut Roads, Swampscott, Mass.
Tufts, J. L., Gen. Chem. Co., Laurel Hill Works, Laurel Hill, N. Y.
Walker, Percy H., Fayetteville, Ark.

ADDRESS WANTED.

Goodell, George A., formerly of 284 St. Nicholas Ave., N. Y. City.

ERRATUM.

By an oversight the name of Dr. Talbot did not appear in the list of councilors present at the meeting of the council in New York last June. He was present, and his name should be added to the list of those councilors who attended the meeting.

Issued with November Number, 1900.

Proceedings.

COUNCIL.

The motion printed on page 74 of the Proceedings has been amended so as to read as follows:

Resolved, That the president of the Society appoint a committee of five, of which he himself shall be one, to report to the Council upon a new contract for the printing of the Journal of the Society.

It has also been voted that the present contract for printing the Journal be continued till such time as a new contract can be presented and approved.

NAMES PROPOSED FOR MEMBERSHIP.

Balcom, Reuben W., Mass. Inst. Tech., Boston, Mass.
Baltzly, Edwin B., Perth Amboy, N. J.
Benedict, Francis G., Middletown, Conn.
Braman, Winfred W., Durham, N. H.
Breves, Rudolph, Rahway, N. J.
Brown, John W., 126 Massachusetts Ave., Boston, Mass.
Champion, E. C., Iola Portland Cement Co., Iola, Kans.
Gordon, A. S., Oliver Iron Mining Co., Mountain Iron, St. Louis Co., Minn.
Grainger, Wm. E., Cranberry, Mitchell Co., N. C.
Hemmings, Frederick J., 12 Pearl St., Boston, Mass.
Heckeroth, Wm. C., 3443 N. 18th St., Philadelphia, Pa.
Heckman, J. Conrad, Larkin Soap Co., Buffalo, N. Y.
Melcher, Arthur C., 58 Bowen St., Newton Centre, Mass.
Morgan, W. C., Washburn College, Topeka, Kans.
Osgyani, Arpad, 64 Orchard St., Astoria, L. I., N. Y.
Pough, Francis H., 146 Hicks St., Brooklyn, N. Y.
Walton, James H., Jr., Room 317, 126 Massachusetts Ave., Boston, Mass.
Wheeler, Alwyn S., Chapel Hill, N. C.
Woods, Chas. D., Orono, Me.

NAMES PROPOSED FOR ASSOCIATE MEMBERSHIP.

Cary, Edward A., Lafayette College, Easton, Pa.
Felt, W. W., 9431 Normal Ave., Chicago, Ill.
Haskell, Albert A., Essex, Mass.
Howard, John J., 118 McKeen Hall, Easton, Pa.

NEW MEMBERS ELECTED SEPTEMBER 17, 1900.

Hegeman, John W., 102 Barbey St., Brooklyn, N. Y.
Hooper, Everett D., 10 Studio Bldg., Boston, Mass.
Porter, Horace C., 902 Locust St., Kansas City, Mo.

CHANGES OF ADDRESS.

Affelder, Oscar I., 1230 Sheffield St., Allegheny, Pa.
Archibald, Eben H., 1691 Cambridge St., Cambridge, Mass.
Ashley, Harrison E., care Tremont Nail Co., West Wareham, Mass.
Barrows, W. A., Jr., Everett, Bedford Co., Pa.
Baxter, Gregory P., Swarthmore College, Swarthmore, Pa.
Beans, H. T., Univ. of Idaho, Moscow, Idaho.
Bonnet, Frederic, 9 Wadsworth House, Cambridge, Mass.
Bowman, Walker, 538 W. 14th St., New York City.
Cayvan, L. L., 294 W. Monroe St., Chicago, Ill.
Chesnut, Victor K., U. S. Dept. of Agr., Washington, D. C.
Condit, Louis C., 85 Newkirk Hall, Lafayette College, Easton, Pa.
Cook, A. D., 519 E. State St., Ithaca, N. Y.
Craig, A. G., 5803 Parker St., Pittsburg, Pa.
Cuadrado, Gaston A., Dept. de Anal. Quimico, Monte 44, Habana, Cuba.
Dodge, F. E., care Barrett Mfg. Co., Tucker and Bermuda Sts., Frankford, Philadelphia, Pa.
Dunlap, Frederick L., 616 Church St., Ann Arbor, Mich.
Duryea, Chester B., 34 Gramercy Park, N. Y. City.
Williams, S. Everard, 4 Brimmer St., Boston, Mass.
Fuelling, J. L. Industrial Tablet & Chemical Co., Mercer St., Mill Road, Jersey City, N. J.
Green, Erik H., 41 St. Botolph St., Boston, Mass.
Havens, Franke S., 30–32 Varick St., New York City.
Hollis, Frederick S., Med. Dept., Yale Univ., New Haven, Conn.
Huntington, Harwood, Buckingham, 2 E. 50th St., New York City.
Johnson, T. B., Sheffield Chem. Lab., Yale Univ., New Haven, Conn.

Knight, George W., 39 Front St., Schenectady, N. Y.
Knorr, A. E., care Guggenheim Sm. Co., Perth Amboy, N. J.
Laudig, O. O., Supt. Blast Furnace, care Ill. Steel Co., Joliet, Ill.
Ledoux, A. R., 99 John St., New York City.
Lipman, J. G., 616 N. Aurora St., Ithaca, N. Y.
Lysle, Walter S., 507 W. 112th St., New York City.
Merigold, B. S., Worcester Poly. Inst., Worcester, Mass.
Meyer, Gustave M., care Bigler & Moriand, 6 Rue St. Legers, Geneva, Switzerland.
Miller, John A., 44-45 Lewis Block, Buffalo, N. Y.
Millwood, James P., 246 Willoughby Ave., Brooklyn, N. Y.
Macdowell, W. F., U. S. Marine Hospital Service, Havana, Cuba.
McIntosh, Douglas, Chem. Bldg., McGill Univ., Montreal, Canada.
Norman, Geo. M., 249 Center St., Bloomsburg, Pa.
Norton, Mrs. Alice P., 230 Hampden St., Chicago, Ill.
Parmelee, C. W., N. Y. and Boston Dyewood Co., Greenpoint, Brooklyn, N. Y.
Peek, R. L., 99 John St., New York City.
Peppel, S. V., 169 King Ave., Columbus, O.
Phelps, Isaac King, 102 North, Yale Univ., New Haven, Conn.
Porter, Miss Georgia, care Johnson & Johnson, New Brunswick, N. J.
Root, Wm. W., Chicago Manual Training School, Chicago, Ill.
Sanderson, John, 4 Lancaster Road, London, N. W., England.
Sawyer, Harris E., 27 Bellevue St., Dorchester, Mass.
Smither, F. W., 36 Cole Bldg., Nashville, Tenn.
Sy, Albert P., Frankford Arsenal, Frankford, Philadelphia, Pa.
Taylor, Thomas M., 3607 Sansom St., Philadelphia, Pa.
Thurlow, Nathaniel, 43 Halsey St., Newark, N. J.
Tuschka, Otto, Fundicion No. 2, Monterey, Mexico.
Watson, E. T., 935 Neil Ave., Columbus, Ohio.
Whittier, Charles T., 92 St. James Pl., Brooklyn, N. Y.

ROBERT WILHELM BUNSEN.

PROFESSOR R. W. BUNSEN.

The committee[1] appointed at the Columbus Meeting of the American Chemical Society to draw up a memorial upon the late Professor R. W. Bunsen, an honorary member of the Society during nearly the whole period of its existence, presents the following as a tribute of the Society and of American chemists generally to the life, character, and works of that great man and eminent chemist.

Robert Wilhelm Eberhard Bunsen was born in Göttingen on March 31, 1811. Among his ancestors one of the most prominent was Jeremiah Bunsen, who lived in Arlosen, 1688–1752, and was Hofmaler, Münzmeister, and Bürgermeister there. He was a great admirer of natural science, and himself published certain writings on electricity, magnetism, the Northern Lights, etc.

Little is known of Robert Bunsen's childhood and youth. He was the youngest of four sons of Christian Bunsen, librarian and professor of philology in the University of Göttingen. The father was a man of cheerful disposition and a ready sense of humor. His mother was the daughter of a British officer of Hanover,—Quensel,—a woman possessed of depth of mind and heart. It is not difficult to see that some of the characteristics of both parents were freely transmitted to the son. As a boy, Bunsen is said to have been of a quick and violent temper, which his mother only knew how to control, but those who knew the man could scarcely be brought to give credence to such rumor. If true, however, how great must have been the self-mastery that changed him into the serene and quiet man of his mature years! At home Bunsen had excellent opportunities to learn languages other than his native tongue, from the number of foreign youths, especially French, who frequently visited his parents and sometimes lived in the family. This was a very fortunate circumstance and early became of great practical utility to him. At the age of seventeen he passed his matriculation examination for the University, and when nineteen took the degree Doctor of Philosophy. He had a good classical education and even to his old age was fond of reading Cicero and other Latin authors in the original. In 1830 he won an academic prize for an exhaustive enumeration and description of hygrometers, written in elegant Latin. This paper seems also to have served as his inaugural dissertation upon the attainment of his doctor's degree.

At the University he was quiet and retiring and took but little

[1] The committee has made free use of every available source of information regarding Professor Bunsen, and has endeavored to give credit for all important quotations, although it has not seemed necessary to indicate with quotation marks simple data of statistics and facts.

part in what is generally understood as student life. He was full of good humor, however, and a diligent and enthusiastic student. His special subjects of study were physics, chemistry under Stromeyer, mineralogy and geology under Hausmann, and mathematics under Gauss. He was especially fond of geognostic studies and made frequent excursions in the vicinity of Göttingen and in the Harz. These excursions for practical study and observation he began even before he entered the University.

In May, 1832, Bunsen undertook an extended tour for the sake of broadening his scientific information and culture. He went to Berlin, Paris, and Vienna, making a large portion of the journey afoot, visiting chemical manufactories and other works at various points en route, and taking many opportunities to extend his geognostic observations. During this tour he formed the acquaintance of many of the leading scientists of his day, and enjoyed more or less intimate association with a number of them. He met Runge, Gustav and Heinrich Rose, and Mitscherlich, and was with the latter for three weeks pursuing geognostic studies in the Eifel. In Giessen he met Liebig and Wöhler, and in Paris Pelouze, Regnault, Brogniard, and others. He studied the mineral and geological collections of Weiss and for a time worked in the laboratory of Heinrich Rose. It was under the advice of Rose that he went to Paris. While in Paris he attended a session of the Academy at which Chevreul, then at the summit of his fame, presented a paper upon cholera and its treatment. At this session also it was announced that Ampère had found in hydrofluoric acid a specific for combatting the disease. Bunsen, through the recommendation of prominent scientists, gained admission to the Polytechnic School, where he attended a course of lectures during the winter semester, 1832–1833. He made no attempt to attend lectures in Berlin and Vienna, but preferred to extend his scientific knowledge and opportunities by acquaintance and association with the learned men whom he met. In this he succeeded to a remarkable degree, and he dated a life-long acquaintance and deep friendship with Heinrich Rose, Mitscherlich, and others from this tour. He remained in Paris from the last of September till the middle of May and then went to Vienna *via* Innsbruck and Salzburg. His stay in Vienna lasted about six weeks, after which he returned to Göttingen, stopping on his way at Prague, Freiberg, and Leipsic.

The object of Bunsen's tour had been most successfully attained. He had come into personal acquaintance with great scientists of Europe, and by their aid and friendship had had opportunities for the study of theoretical and applied science, which helped to lay broad, deep, and solid the foundation upon which his success and fame were to be built. Already he was a

marked man and many eyes were looking toward his future. Returning to Göttingen, he became privatdocent in 1833, and after three semesters, upon the death of Stromeyer, he conducted the lectures at the University upon theoretical and practical chemistry. His popularity was great, as was shown by the number of students in attendance. In January, 1836, Wöhler was called to become the successor of Stromeyer, at Göttingen, and Bunsen was appointed Wöhler's successor as professor of chemistry in the Polytechnic School at Kassel. This institution had long been known for the character and standing of its professors, and Bunsen did his part in sustaining its reputation. He entered upon his work at Kassel with great vigor and made an enviable record during the short period of his stay there.

In 1838, Bunsen accepted a call to the University of Marburg, where he remained thirteen years as professor and director of the chemical laboratory. In 1851, he went to the University of Breslau, where he planned a famous working laboratory, and the next year he accepted a call from Heidelberg, at that time the goal of every German professor's ambition, and "the *ne plus ultra* of his promotion." Here he planned a new laboratory which, when completed in 1855, was the largest in all Germany, furnishing working places for fifty students. Here it was that students from all quarters of the world thronged and crowded upon one another to secure the opportunity of attending the lectures and obtaining personal instruction in laboratory practice and research from the now renowned professor. Bunsen remained at Heidelberg until the day of his death, repelling all overtures from Berlin when the German government was putting forth its most strenuous efforts to make the university of that city the greatest seat of learning in all Europe. He retired from active work in 1889, having filled the position of teacher for more than fifty years, during which period all his important work as a scientist was also accomplished. His death occurred August 16, 1899.

In 1834, Bunsen, in conjunction with his colleague Berthold, published the results of his first scientific investigation, and by that means conferred a lasting boon upon humanity. He announced that moist, freshly precipitated ferric hydroxide is a sure antidote in cases of arsenical poisoning, providing it is given early enough and in sufficient quantity. This paper at once attracted wide attention on account of the great and permanent importance of the remedy which is to-day almost universally known and accessible.

In 1835, Bunsen investigated some of the compounds which the double cyanides form with ammonia. He measured the angles of the crystals which many of the cyanides form and estab-

lished certain facts contrary to the general belief regarding these compounds. He showed, *e. g.*, that ammonium ferrocyanide is not produced by boiling Prussian blue with ammonia, but by digesting ammonium carbonate with lead ferrocyanide.

Closely following these early investigations came Bunsen's important researches upon the cacodyl series of organic compounds, which contributed largely to the establishment of the theory of compound radicals and gave to the world the first example of an organo-metallic body, or, as Bunsen called it, "a true organic metal." These researches covered a period of five years, from 1837 to 1842, and constituted his only great and important excursion into the field of organic chemistry. The preparation and study of the properties of cacodyl were attended with the greatest risks; the safety and even the life of the investigator were in almost constant jeopardy. "One cannot read the memoirs describing the preparation of this compound without being impressed with the difficulty of the task, the attendant danger, and the ingenuity displayed in conducting the investigations." "A highly poisonous liquid, very volatile, dangerously explosive, spontaneously inflammable in the air," and insupportably offensive to the smell, this fearful compound taxed all the resources of the investigator and proved to the world the stuff he was made of. But even Bunsen, "with his scientific acumen and unfaltering determination, did not escape scot-free from such a labor, for in analyzing the cyanide of cacodyl the combustion-tube exploded and he lost the sight of an eye and for weeks lay between life and death, owing to the combined effect of the explosion and the poisonous nature of the vapor." Upon regaining his strength, however, he continued his investigations with unremitting vigor. His patient persistence and courage were sublime, and his superiority to conditions and emergencies and the final results of these labors convinced the world that a master hand and brain had been engaged in wresting from nature some of her subtlest secrets.

At Marburg, Bunsen made a study of the chemical changes which occur in the blast-furnace. In 1838, he proved, by accurate analyses of the gas escaping from the furnace used in connection with the hematite iron mines there, that at least 42 per cent. of the heat from the fuel was lost in the escaping gases. He showed how these gases could be collected and utilized as fuel and thus far greater economy and efficiency obtained in working the furnace. Besides "pointing the way to a method of economical working without which probably but few ironmasters of the present day could exist," he devised methods of gas analysis which were far in advance of those of Priestley, Cavendish, Gay-Lussac and others and which form

the basis of the exact gas analysis of to-day. Roscoe, in 1881, said of this work: "This important branch of analytical chemistry has been created and brought to its present wonderful degree of precision solely by the head and hands of the Heidelberg experimental philosopher." His investigations of gases were not confined, however, to analytical methods and technical applications. He did pioneer work also in the study of the constants of gases. His researches on the laws of gaseous diffusion and their application in gas analysis, on the phenomena of the combustion of gases, the temperature of ignition, measurements of specific gravity, coefficients of absorption, etc., were conducted with characteristic zeal and devotion. Not content with the range of his investigations, he visited Vesuvius in Italy and the volcanic region of Iceland, and collected the gases issuing forth from hot springs. With the data he had obtained, he formed his theory of the inner construction of the earth, volcanic eruptions, and the action of geysers.

Besides his investigations of the gases and the phenomena of volcanic and geyser action, Bunsen collected samples of volcanic rocks during his trip to Iceland, and later, in 1853, made careful analysis of these, deducing from his results conclusions upon which he based his theory of the composition of volcanic rocks.

In 1841, Bunsen invented the well-known voltaic cell in which carbon was substituted for the expensive platinum as the negative electrode. This at once took rank as the most economical and efficient means for obtaining a powerful electric current, and remained such till the invention and perfection of the dynamo.

With the aid of his voltaic cell, Bunsen began investigations on the electrolytic reduction of magnesium from its chloride. By this means he was able to produce that metal on a scale never before known, and by pressing it into wire used it later in his investigations on the chemical activity of light. The prominence thus given to this metal led to its commercial production soon afterwards. A detailed account of Bunsen's important electrolytic work would be very voluminous. Chromium, aluminum, manganese, alkalies and alkaline earths were reduced, and many of the rare metals were isolated and their atomic weights and other constants so accurately established that many of these determinations are still regarded as authoritative. The reduction of the alkaline earths was made in conjunction with Dr. Matthiessen, and the metals of the cerium group were investigated with Norton and Hillebrand.

Bunsen used his voltaic battery in an entirely different way also in studying the properties of metals. He made an arc-light,

with the different metals as electrodes, and analyzed the light with a prism. In that way, in 1844, some years before the invention of the spectroscope, he obtained and described the true line spectra of various elements. For many years after this, Bunsen's investigations in spectrum analysis were interrupted by other matters, and when he renewed his researches in this direction, it was with the aid of the gas-burner which he had meanwhile devised, and later with the additional aid of the spectroscope, the joint production of the inventive genius of himself and his colaborer, Kirchhoff.

In 1857, Bunsen and Roscoe first described the Bunsen burner. This invention furnished a non-luminous gas flame, of relatively high temperature, in which chemical substances could be vaporized and a spectrum obtained due to the luminous vapor. This burner is now used as a source of heat in various manufacturing processes, and in many households, and is practically indispensable in all chemical laboratories. With the invention and use of this burner, a new impulse was given to the investigation of the spectra of the metals, and Bunsen now studied them from their chlorides, as these were volatilized in the colorless flame of the burner. Kirchhoff, professor of physics at Heidelberg, became associated with him in these researches, and dealt more especially with the physical problems involved, while Bunsen approached the subject from the standpoint of a chemist who was also an expert in various phases of physical research.

In 1859, Bunsen and Kirchhoff perfected the spectroscope and continued their classical researches in spectrum analysis, among other results discovering the metals caesium and rubidium, the salts of which were obtained in small quantity, but in the hands of Bunsen in sufficient amount to enable him to determine many of the properties and constants of these rare metals. By evaporating 44,000 kilos of the Dürkheim mineral water in which traces of these two metals had been found, he obtained 16.5 grams of the mixed chlorides of the two new metals, and with this he succeeded in separating them and in establishing their relationship so well that his results still stand as practically correct and complete.

The invention of the spectroscope, the founding of the science of spectrum analysis, and the important researches in that science which were conducted by Bunsen and Kirchhoff, led to far-reaching results and were alone sufficient to place the name of each of these investigators upon the pinnacle of enduring fame. From the record that has already been made by this new method of research, we are warranted in saying that it would require the boldest flights of scientific imagination

to encompass the variety and extent of the uses to which the spectroscope may be applied and of the revelations which may be expected from spectrum analysis. In fact it has already thrown floods of light upon nearly every department of theoretical science and has furnished one of the keenest and most penetrating of instruments which man can use in the application of science to practical affairs, and to the investigation of unexplored fields of scientific research. A catalogue of its revelations in optics, astronomy, and chemistry and of its application in medical and medico-legal practice and in the arts and manufactures, would be wearisome from the mass of important details it would present, and we can best leave this topic by assuming that its principal facts and outlines are to-day familiar to every well-informed person.

Bunsen's work in connection with the spectroscope and spectrum analysis constituted only a portion of his researches upon light. Just as the investigations of the line, absorption and spark phenomena were of far-reaching scientific importance and have been turned to practical account in a great variety of directions, so his researches upon the chemical action of light have been regarded as "the classical model for all later investigations in the realm of physical chemistry" and have been of great practical value in considerations affecting photography, agriculture, and various other arts and industries, while his method of measuring the intensity of light from any given source, is of great importance from a scientific standpoint and has its valuable application in the Bunsen photometer as used to-day in determining the candle-power of illuminating gas and the electric light.

The variety and accuracy of Bunsen's analytical methods are marvelous. It has been said that "next to Heinrich Rose he was the greatest and especially the most original analyst of his time." There are those, however, who would not make even this exception in favor of Rose, especially when Bunsen's manipulative skill, the certainty and accuracy of his results, his many ingenious devices, and the simplicity of the apparatus he designed for doing his work are taken into consideration. We have only to mention his gasometric and volumetric methods, his flame reactions, distinct from the spectrum analysis, his analyses of silicates and mineral waters, separation of arsenic and antimony, separation of the rare earths and the metals of the platinum group, to recall these and scores of other processes with which every chemist is to-day familiar, which he employs in his own work whenever occasion may arise and for many of which no adequate substitute is yet known.

No important branch of chemistry remained unexplored by

Bunsen, and his accomplishments in any one of them alone would have secured for him abiding fame. Organic, inorganic, physical, analytical, theoretical, and technical chemistry were alike enriched by his researches and his name is connected in some way with our knowledge of almost every element known in his day. Chemical and other scientific laboratories to-day are full of apparatus and contrivances invented by Bunsen, and they have become practically indispensable in many lines of modern scientific research. No chemist or physicist now would think of carrying on his investigations without them. But the realms of chemistry and physics were not broad enough to circumscribe the genius and labors of Bunsen. He enriched every field which he entered as a scientific investigator and he entered fields of investigation in nearly every science. Chemistry, physics, and mineralogy, it is true, absorbed the greater portion of his time, thought, and energy, but the results he achieved in these were so fundamental and far-reaching that astronomy and various other branches of pure and applied science reaped a full and rich harvest as the ripened fruit of his labors.

It has been said that "it never once happened to Bunsen to take up any considerable research without producing a discovery decidedly brilliant; and he almost always flung in something useful to boot." This was eminently illustrated by his researches on cacodyl and the discovery of ferric hydroxide as a remedy for arsenical poisoning; by his analysis of blast-furnace gases, revealing the waste of gaseous fuel and pointing the way to more economical working through the use of the hot blast and the development and use of producer gas; and by his investigations in the realm of optics, leading to the invention of the spectroscope and the valuable results which have flowed from spectrum analysis.

Bunsen was a scientific genius of the highest order, whether we define the term genius as the capacity for work, or as the ability to perceive and recognize truth and bring to light fundamental facts and laws when buried beneath the rubbish of false theory and tradition or concealed by a mass of details which permit none but the most penetrating intellect to discover them and to bring them to the comprehension of ordinary minds and within the range of ordinary human experience. He was not himself very tolerant of theories. He said, in 1871, to one of his pupils, that he had already lived through three or four sets of theories and he expected to see many more before he died.

Bunsen used almost every discovery and investigation he made as a basis for further work, and it seemed as though every advance opened to him vistas ever more and more alluring. The good uses to which he put his battery and burner, the employment

of magnesium in his investigations on light and the thoroughness with which he worked out the properties of the metals he reduced, and various data regarding them, all testify to the completeness and comprehensiveness of his work. He never left much for others to do in the fields in which he labored. "He left the theme he chose completed." While following up a single line of investigation, he would often stray into by-paths in which he would pluck the ripened fruit with which nature tempted him, and strengthened and inspired by that he would return with broader data and fuller insight into the main line of his investigations as a reward for his little side trip. Many a person would have been distracted by the varied secrets which nature yielded to him at such times and might have been turned from the main subject of their inquiry by inviting side issues; but while Bunsen gave much attention to these, they always strengthened him in his main work while, at the same time, yielding abundant harvests and furnishing both the incentive and the foundation for subsequent investigations in kindred lines.

Bunsen's methods were precise, accurate, and thorough. His fondness for mathematics and his early education under Gauss in that direction, gave a decidedly mathematical turn to all his researches, and even the simpler reactions of the chemical laboratory were regarded by him from a mathematical point of view. This method of looking upon his work did not invest the subjects with greater obscurity, but just the reverse. The harmonious and fundamental relations of mathematics illumined the whole subject he was investigating, and so clarified the atmosphere as to render his methods charmingly simple and accurate. One can hardly say whether his mind was more successfully inductive or deductive in its processes. There was in its working a rare and happy facility in the use of both, and such a combination of them as rendered his investigations intuitively clear and direct, yet fundamental and comprehensive, and such as would satisfy the demands of formal deductive reasoning. His manipulations, methods of analysis, and construction of apparatus were but the outward and natural expression of the operations of his comprehensive and penetrating intellect.

Bunsen's greatness as a man and as a personal companion and friend is in no danger of being eclipsed by his world-wide renown as a scientific investigator, so long as the testimony of those who knew him can be called in evidence. Physically he was over six feet in height, of massive proportions and swarthy complexion. His personal address was so cordial and unaffected and the charming smile which illumined his features so capti-

vating that all whom he met were irresistibly drawn to him and loved to linger in the atmosphere of his presence. His pupils almost worshiped him for his genius and achievements, loved him for his fatherly ways and his interest in them and their work, and were frequently drawn into the closer relation of personal friendship by his generous nature and the childlike simplicity of his manner. In some instances these relations were lifelong and intimate, but whether circumstances rendered this possible or not, the kindliest feelings of affection for Bunsen as a man, and a high estimate of his genius as a scientist and a teacher, were the permanent possession of those who worked with him in the laboratory and attended his lectures. "In that epoch-making book in literature and science entitled 'Heat as a Mode of Motion,' one of his former pupils has recorded his appreciation of Bunsen in the following language: 'To his friend and teacher, Robert Bunsen, this book is dedicated by John Tyndall.'" Roscoe, who, while a pupil, was very intimately associated with Bunsen in his investigations on light, says: "It is only those who have had the benefit of working under and with him who can fully understand the feeling of affection and respect with which his pupils regard his memory."

From some of his American pupils we quote the following expressions of appreciation, reminiscences, and estimates of Bunsen and his work:

"His name is dear and sacred to us all."

"I shall never forget his kindly patience and helpfulness. That sweet smile of his is ever present with me."

"I shall always remember with pleasure his fatherly ways and great interest in his pupils."

"I have many of the pleasantest recollections of the dear old gentleman who was most kind and gracious to me both in and out of the laboratory."

"To those whose good fortune it was to become an intimate, his nature unfolded, and close and devoted friendships were formed."

"His unaffected simplicity, genial nature, and most lovable disposition were marked characteristics which no one who came in contact with him as a pupil could fail to note. His interest in the work of his pupils was intense and sometimes manifested itself in unexpected ways. He was at all times an honest, faithful, and earnest searcher after truth, and never seemed conscious of any feeling of superiority over his humblest pupil. To know him was to love him. It would, indeed, be difficult to tell which feeling would be uppermost in one's memory of this truly great yet distinctly childlike man—admiration for his achievements or veneration for his character."

"Nothing could win a student's heart more quickly than the gracious way in which he would initiate the beginner into flame reactions, except it might be the delight it gave him to conduct an advanced student through the mazes of a mineral water or platinum ore analysis, or the charm he would throw about his methods of exact measurement, as in the graduation of a eudiometer, the making of an elaborate gas analysis, the determination of the specific heat of a solid, liquid, or gas, or the mapping of spectra."

"I could write of the enthusiastic reception of Professor Bunsen by his students as he appeared at the door of his lecture room, the inspiration his presence made as he gave suggestions at the laboratory tables, his marvelous skill in chemical manipulations, his simple, patient way of illuminating for a student what had been an obscure subject, the crisp words of commendation for a bit of good work done, the feeling near to worship that came to his pupils; but these facts are, I suppose, the common knowledge of all his students."

"As a student I felt I was alongside of a kind-hearted big boy who knew immensely more than I did, and was only too anxious to help me in need. We felt he was interested in our work and was not only capable of assisting us but was ready at a moment's call to help and to advise. I felt that I was getting from him far more personal attention than I deserved. He was one of us in in our working hours and was anxious to bring each labor to a successful result. He lost nothing in professional dignity thereby. We never presumed at familiarity. To us he was ever Robert Bunsen, Geheimrath, and we kept our places 'with our hands on our mouths and our mouths in the dust.'"

"As to the inspiration I derived from two semesters of close contact with him, it was worth all my years elsewhere."

"He was a prince among teachers, simple, plain, and clear, and admirable in his experimenting. The only notes he used were mathematical data written upon a small blackboard at his left hand. In the working laboratory he was always patient and gave us personally a great deal of attention, more than we got anywhere else."

"I first met Bunsen in the retired valley of Engelberg, Switzerland, in 1863. Learning by accident that he was at an adjoining Gasthaus, I called on him and told him of my plans to continue my studies in Heidelberg. He received me graciously and immediately won my heart by his affability, by the charming smile that lit up his large features, and by his unselfish interest in my personal affairs."

"I first met Professor Bunsen, November 6, 1855. I had gone to Germany to study chemistry under him and Liebig, and the

day of my arrival at Heidelberg I called on him at his rooms in the new laboratory building. This was then considered the largest and best arranged in the world. I found him smoking his after-dinner cigar and I immediately took a liking to him. He was then in the prime of life, forty-four years old, and his genial but earnest face impressed me. He seemed younger than I had expected. He had many questions to ask about chemical instruction in America, for students from this country were then flocking to the German University. There were then between fifty and sixty students in his laboratory, scarcely more than half of them German. It seemed to me that half of the nations of the world were represented. Bunsen was genial with his students, visiting everyone's table in his daily circuit of the working rooms, having something to say to each one about his work, even if but a word, but would generally linger if properly tempted. He gave his lecture on general chemistry at nine o'clock in the morning. His method was clear, logical, and concise. He would begin his lecture from the standpoint of our present knowledge of the subject he was discussing, commencing with the element and following by logical succession the chemistry of its compounds."

"Just after the Christmas recess he invited his students to a dinner at the Badischer Hof. It was a happy occasion. There were a few short speeches and he seemed doubly genial. In those days a good cork was a prize for laboratory use, and when on that occasion he caught me slipping a champagne cork into my pocket, with a twinkling eye he remarked that I had the true laboratory instinct. As the dinner broke up he carefully gathered up and carried the other champagne corks away in his pockets, remarking to a student that champagne corks should never be wasted."

"At the opening of my third term, I was elected 'Polizei.' One of the events of my official life was regarded as an exhibition of unparalleled audacity of which only an American was capable. I fined Hofrath Bunsen, who, after lighting his cigar at the flame of a Bunsen burner, had left the gas burning and gone out of the room. According to custom and much to the consternation of the students, I chalked on the desk that Bunsen had used, the words 'six kreutzers' over my initials—a notice that could not be erased until the fine was paid. The next day when Bunsen approached the desk, he glanced at the inscription, smiled broadly, and to the amusement of the crowd of students that had gathered to see the result of my daring, opened his purse and handed me six kreutzers, with a pleasant commendation of the fidelity of the 'Polizei.'"

"After every lecture Bunsen rarely missed spending several

hours in the laboratory, going from student to student with inquiries, suggestions, and useful hints. Desirous of securing my share of this personal contact, I soon found the best way of inducing the Hofrath to linger was to have a supply of clean test-tubes and beakers on an orderly desk, with a query or two requiring experimental answers."

"While Bunsen rarely met his students outside the laboratory, he captivated each by the deep personal interest he took in their individual work. Indeed, so intense was his devotion often to their themes that it was not uncommon for a pupil to find on coming in the morning an analysis or process several stages more advanced than when it was left the night before. Bunsen was an early riser as well as a late worker, and between the two found ample time to have a 'finger in the pie.'"

"Bunsen's practical side is best known to the average man. He was a craftsman beyond compare in the details of what was needed in laboratory utensils and manipulative skill, as was evinced by simplicity of construction, neatness of procedure, and accurateness of result."

"As to his contributions to chemistry, they were enormous, and you must bear in mind that he was born in 1811 and that many of the devices of the laboratory, and most of the principles of the science of chemistry which we are teaching now as a sort of matter of course, 'things that go without saying,' were utterly unknown when he was graduated in Göttingen in 1830."

"In everything Bunsen attempted he was never satisfied until he had finished his work and put it upon an exact scientific basis. I have good cause to think him the best teacher I have ever had and the best chemist of his generation."

"Bunsen became an integral part of Heidelberg and the prestige of this university was to a considerable extent dependent upon his individuality. It was at this seat of learning that he made his most important discoveries and drew men from all parts of the world to his laboratory. Admirable as his previous work had been, it was amidst the charming natural surroundings there and in daily contact with such minds as Helmholtz, or his devoted coworker Kirchhoff, or in the genial companionship of Kopp and Hesse that his genius expanded. It was quite in keeping with his nature that others should partake of the infinite pleasure he had experienced, and he gladly initiated them into the skilful methods his resourceful mind had developed."

"Nothing so much marks Bunsen as a chemist of a past generation as the fact that one cannot speak of him as especially distinguished in any particular branch of the subject. If we go over the men of our science who are well known to-day we find that nearly every one is very closely identified with organic,

analytic, physical, or some other department of chemistry, and has done very little of note outside of his particular field. Bunsen did so much valuable work in every branch of chemistry that he was distinguished in all."

LIST OF AMERICANS WHO HAVE STUDIED UNDER PROFESSOR R. W. BUNSEN.

The following list is, beyond doubt, incomplete, especially as to those who simply attended Bunsen's lectures without working in his laboratory, as was a common custom with medical students in particular. An attempt has been made to communicate with each living person whose name appears in the list. In a number of cases the letters of inquiry have elicited no response, and the information, obtained at second-hand and often meager, has thus been impossible of verification or extension. It is believed, however, that so far as concerns those who at one time or another worked in Bunsen's laboratory, the list is nearly complete.

Of the 101 persons enumerated at least 62 have either taken the doctor's degree under Bunsen or have at one time or another filled professional chairs at one or more institutions of learning, or both. Of the above 62, there are known to have taken the degree 33, and to have become professors 46. A number of the latter took their doctor's degree elsewhere. Death has claimed at least 20.

Andrus, Geo. Lawrence. (Brooklyn, N. Y.) 1873–74. Present address unknown. Did not pursue chemistry as a profession.

Austin, W. Lawrence. 1871–74. Ph.D., 1876. Metallurgical engineer, Denver, Colo. (Box 941).

Bache, Chas. L. 1869–71. Formerly with Philadelphia mint; now assayer and metallurgist, Redding, Cal.

*Bayne, H. A. 1875. At one time professor of chemistry, Royal Military College, Kingston, Ontario, Canada.

Becker, Geo. F. (New York.) 1868–69. Ph.D., 1869. Graduate Royal School of Mines, Berlin, 1871. Instructor University of California. Since 1879 connected with U. S. Geological Survey, Washington, D. C.

Bernays, A. C. 1872–73. M.D. Practicing physician in St. Louis, Mo.

Best, Wm. F. (Fredericton?, N. B.) About 1874–75. Has been analytical chemist in Nova Scotia or New Brunswick.

Blair, Geo. D. (Pittsburg, Pa.) 1870.

*Blake, Eli W. 1864. At one time professor of chemistry at the University of Vermont, again at Cornell, and later professor of physics at Brown University, Providence, R. I. Died 1895.

Bolton, B. Meade. (Richmond, Va.) 1883–84. M.D., University of Virginia, 1879. Formerly associate at Johns Hopkins, professor in Universities of South Carolina and Missouri; later director of the laboratory of hygiene, board of health, Philadelphia, Pa. Now practicing physician, Princeton, N. J.

Bolton, H. Carrington. (New York.) 1863–65. Ph.D., Göttingen. Formerly assistant in Columbia School of Mines, professor Woman's Medical College of New York Infirmary, and Trinity College, Hartford, Conn. Present address Cosmos Club, Washington, D. C.

Borden, Wm. F. (Chicago.) 1868. At one time engaged in metallurgical operations at Leadville, Colo. Present address Borden Block, Randolph and Dearborn Streets, Chicago, Ill.

*Bowen, Henry C. About 1875. Instructor in School of Mines, Columbia College, N. Y., and technical chemist. Died 1899.

Bowman, Walker. 1885. Ph.D., Berlin, 1888. At one time professor of chemistry, Ohio State University, now chemist Louisville Spirit Cured Tobacco Co., Louisville, Ky.

Boyd, Wm. W. (Boston.) 1872?

Brewer, Wm. H. (Poughkeepsie, N. Y.) 1855–56. Formerly professor Washington and Jefferson College, Washington, Pa., assistant on Geologic Survey of California, professor University of California. Since 1864 professor of agriculture, Sheffield Scientific School, New Haven, Conn.

Brown, W. G. 1880–81. Formerly professor Washington and Lee University, Va., chemist Department of Agriculture, Washington, D. C.; now professor University of Missouri, Columbia, Mo.

Burney, Wm. (Davidson, N. C.) Between 1875–79. Ph.D., 187–. Professor of chemistry, College of South Carolina, Columbia, S. C.

Burton, Beverly S. 1871. Ph.D., 1871. At one time professor East Tennessee University. Retired from active chemical work. Address Munich, Carlsstr. 61aIII.

Case, Jos.? Alliene? (Columbia, Pa.?) 1871?

Caldwell, Geo. C. (Framingham, Mass.) 1857–58. Ph.D., Göttingen 1857. Formerly professor Antioch College, Ohio, and Agricultural College of Pennsylvania. Since 1868 professor agricultural and analytical chemistry, Cornell University, Ithaca, N. Y.

Chapman, Nelson C. (St. Louis, Mo.) 1870–71. Has not followed chemistry. President Cumberland Construction Co., Chemical Bldg., St. Louis, Mo.

Chatard, Thos. M. (Baltimore, Md.) 1876. Ph.D., 1876. Formerly chemist U. S. Torpedo Station, Newport, R. I., later U. S. Geological Survey. Not actively engaged in chemistry. Address 1714 Rhode Island Ave., Washington, D. C.

Comey, Arthur M. (Boston, Mass.) 1884–85. Ph.D., 1885. At one time professor Tufts College, Boston, Mass. Address 54 Concord Ave., Cambridge, Mass.

Dana, Edward S. (New Haven, Conn.) 1872–73. Ph.D., Yale. Professor Yale University, New Haven, Conn.

De Fremery, James L. 1885–86. Ph.D., 1886. President and general manager of the American Lucol Co., 44 Broadway, New York City.

*Dexter, Wm. Prescott, M.D. (Boston, Mass.) 1855. Died 1890.

Dodge, Jacob A. (Salem, Mass.) Between 1875–79. Ph.D., 187–. Lately professor of chemistry, University of Minnesota. Present address unknown.

Doremus, Chas. A. (New York.) 1870–72. Ph.D., 1872. Formerly professor University of Buffalo, N. Y., now assistant professor of chemistry and physics, College of the City of New York.

Drown, Thos. M. (Philadelphia, Pa.) 1866–68. Formerly professor of chemistry, Lafayette College, Easton, Pa., and Massachusetts Institute of Technology, now president Lehigh University, South Bethlehem, Pa.

*Easter, J. D. 1854. Ph.D., 1854. At one time professor of chemistry, University of Georgia, Athens, Ga. Died an Episcopal clergyman in Kentucky.

Fisher, Davenport. 1854–55. Ph.D., 1854. Analytical chemist, Room 610, Old Insurance Building, Milwaukee, Wis.

Fisher, Wm. Righter. (Philadelphia, Pa.) 1872. Attorney at law, Stephen Girard Building, Philadelphia, Pa.

*Genth, F. A. (Waechtersbach, Hesse-Cassel.) Ph.D., 1846. Received degree at Marburg while Bunsen was professor there; was Bunsen's assistant three years prior to coming to America. Later professor of chemistry and mineralogy, University of Pennsylvania. Died 1893.

Goodwin, W. L. 1880–81. D.Sc., Edinburgh, 1881. School of Mines, Kingston, Ontario, Canada.

Goodyear, Henry. (New Haven, Conn.) 1870–71.

Hague, Arnold. (Boston, Mass.) 1864–65. Assistant Geologist Fortieth Parallel Survey. Since 1879 member U. S. Geological Survey, Washington, D. C.

Hale, Albert C. (New York.) 1879–80. Ph.D., 1880. Formerly president Colorado State School of Mines. Since 1883 head teacher physical sciences, Boys' High School, Brooklyn, N. Y. Address 551 Putnam Ave.

*Hallock, Edward J. 1877–78. Ph.D., 1878. Assistant in chemistry, Columbia University, New York City. Died 1884.

Hennessy, Walter. 1869–70. Lawyer, ?99 Nassau Street, New York City.

Hilgard, E. W. (Zweibrücken, Rhenish Bavaria.) 1852–53. Ph.D., 1853. Formerly state geologist, and professor of chemistry, University of Mississippi, professor of geology, etc., University of Michigan. Now professor of agriculture, University of California, Berkeley, Cal.

Hillebrand, Wm. F. (Honolulu, H. I.) 1872–76. Ph.D., 1875. Formerly assayer, Leadville, Colorado. Since 1880, chemist U. S. Geological Survey, Denver, Colorado, and Washington, D. C. Since 1892 also professor of chemistry, National College of Pharmacy, Washington, D. C.

Hitchcock, H. A. (Chicago.) After 1872.

Hodges, Harrison B. (Boston, Mass.) 1873–74. Formerly technical chemist in Boston; later with U. P. R. R., Omaha, B. & O. R. R., Baltimore, Southern R. R., Washington, D. C.; now purchasing agent L. I. R. R., Long Island City, N. Y.

Hodges, N. D. C. 1874–75. Formerly editor "Science"; now librarian Public Library, Cincinnati, Ohio.

Hunter, Richard. (New York.) 1870.

*Irby, Wm. (Virginia.) 1876–77. Ph.D., Bonn.

Jackson, Chas. Loring. (Boston, Mass.) 1873–74. Professor of chemistry, Harvard University, Cambridge, Mass.

Jayne, H. W. 1877–78. Ph.D., Strassburg, 1882. Address 931 N. Broad St., Philadelphia, Pa.

Kinnicutt, Leonard, P. 1875–76. Director chemical laboratory, Worcester Polytechnic Institute, Worcester, Mass.

Kuntz. Between 1876–79.

Lees, Wm. T. (Brooklyn, N. Y.) 1873–76. Consolidated Gas Company, Avenue A., Corner 21st St., New York City.

Loeb, Morris. 1887–88. Professor of chemistry, University of the City of New York.

Luedeking, Robert. 1872–73. M.D., 1876, Strassburg. In 1882 lecturer, from 1883–92 incumbent of chair of pathological anatomy, since 1892 of chair of diseases of children in St. Louis Medical College (now a Department of Washington University), St. Louis, Mo.

*Lupton, N. T. (Nashville, Tenn.)? 1875. Formerly professor of chemistry, Vanderbilt University, Nashville, Tennessee, later in State University of Alabama. Deceased, Auburn, Ala.

Magee. (Philadelphia, Pa.) 1856.

*McBurney, Henry. (Boston.) 1864–65. Manufacturing chemist, Boston, Mass.

McCay, Leroy W. 1882. Ph.D., Princeton. Professor of chemistry, Princeton University, Princeton, N. J.

Merrill, N. Fred. (Charleston, ?.) 1871–72. Professor University of Vermont, Burlington, Vt.

Michael, Arthur. 1872–74. Professor of chemistry, Tufts College, Boston, Mass.

Miller, Geo. M. (New York.) 1863–65. At one time assistant in assaying, School of Mines, Columbia University, New York. Did not pursue chemistry afterwards.

Mixter, Wm. G. (New York.) 1872–73. Professor of chemistry, Sheffield Scientific School, New Haven, Conn.

Moellman, Rudolph. (Brooklyn, N. Y.) 1870.

*Moore, Gideon E. (New York.) 1870. Ph.D., 1870. Prior to 1867, analytical chemist, San Francisco, and assayer, Virginia City, Nevada. Chemist Passaic Zinc Co., from 1872 to time of death in 1895.

Mayer, Benj. F. (New York.) 187–.

Nichols, Lyman. (Boston, Mass.) 1863–65. Has not followed chemistry. Address, 14 Commonwealth Ave., Boston, Mass.

Norton, Sidney A. (Bloomfield, O.) 1871. Ph.D., Kenyon, 1878. Formerly instructor Cleveland High School, professor of chemistry, Miami University, acting professor of physics, Union College. Since 1873 professor of chemistry, Ohio State University, Columbus, Ohio.

Norton, Thos. H. (Rushford, N. Y.) 1873–75. Ph.D. 1875. Formerly manufacturing chemist, Paris, France, professor of chemistry and librarian, University of Cincinnati, Ohio. Now U. S. Consul, Harput, Turkish Armenia.

*Osbun, 1874–75. Professor, Wittenberg College, Springfield, Ohio.

Penny, 1888. Was instructor in a Methodist College about 1891.

Pitman, S. Minot. 1873–74. At one time professor of chemistry, Tufts College, Boston, Mass.; now in insurance business, Providence, R. I.

Prochazka, Geo. A. (Newark, N. J.) 1873–74. Ph.D., 1874. Assistant in chemistry, Stevens Institute, Hoboken, N. J.; later analytical and consulting chemist, New York City; since 1881 technical and manufacturing chemist; now president Central Dyestuff and Chemical Co., Plum Point Lane, Newark, N. J. (Address 138 West 13th St., New York.)

*Pugh, Evan. (Germantown, Pa.) 1856–57. Ph.D., Göttingen. Formerly president Pennsylvania State College. Died 1864.

Rau, Henry M. 1877–79. Ph.D., 1879. chemist and chemical manufacturer, 130–132 Pearl St., New York City.

Reese, Chas. L. (Baltimore, Md.) 1884–86. Ph.D., 1886. Formerly assistant, Johns Hopkins University, professor of chemistry, Wake Forest College, and South Carolina Military College, now chemist, New Jersey Zinc Co., Newark, N. J.

Reynolds, Geo. (New York.) 1854–55.

Rising, Willard B. (Mechlenburg, N. Y.) 1869–71. Ph.D., 1871. State analyst and professor of chemistry, University of California, Berkeley, Cal.

*Root, Edward Walstein. 1864–65. Formerly assistant in chemistry, Columbia College, School of Mines; then professor of chemistry, Hamilton College, Clinton, N. Y. Died 1870.

Seely, Henry M. (Onondaga, N. Y.) 1867–68. Formerly professor of chemistry, Berkshire Medical Institute, and Medical Department, University of Vermont; professor of chemistry and natural history, and since 1895, emeritus professor of natural history, Middlebury College, Vermont.

Slingluff, Frank. (Baltimore, Md.) 1863–65.

Smith, Eugene Allen. 1866–68. Ph.D., 1868. Prior to 1872 assistant on Geologic Survey of Mississippi, now state geologist and professor of geology and mineralogy, State University of Alabama, University, Alabama.

Smyth, Geo. A. (Brunswick, .) 1872. Address 120 S. Grove Ave., Oak Park, Ill.

Soule, Edward. (New Haven, Conn.) 1870.

Springer, Alfred. 1871–73. Ph.D., 1872. Manufacturing chemist, Cincinnati, Ohio (Box 621).

Strauss? Fred. (Pittsburg.) 187–.

Terry, N. W. 1871–72. Ph.D., Göttingen. Professor of physics, U. S. Naval Academy, Annapolis, Md.

Thomson, Wm. J. (New Orleans.) 187–.

Treadwell, Fred. P. (Portsmouth, N. H.) 1875–79. Ph.D., 1878. Was Bunsen's lecture assistant for three semesters 1878–79. Ordentlicher professor of chemistry, Eidgenös. Polytechnikum, Zürich, Switzerland.

Waddell, John. 1883–84. Ph.D., 1884. Professor of chemistry, School of Mines, Kingston, Ontario, Canada.

Wahl, Wm. H. 1867–68. Ph.D., 1868. Secretary, Franklin Institute, Philadelphia, Pa.

Waldstein, Martin. (New York.) 1873–75. Ph.D., 1875. Manufacturing chemist, 107 Murray St., New York City.

*Walton, Henry C. (New York.) 1870. Died in New York.

*Walz, Isidor. (New York.) 1866–68. Ph.D., 1867. Consulting and analytical chemist. Died in New York, 1877.

*Webster, . (Pawtucket, R. I.) 1856. Died about 1860 or 1861, shortly after applying for a professorship in Washington and Jefferson College, Washington, Pa.

Wilkins, Ross. 1879–82. Ph.D., 1882. Has held various positions as

chemist, assayer, and superintendent; now chemist Detroit plant, American Radiator Co., Detroit, Mich.

*Williams, Geo. H. (Utica, N. Y.) 1880–82. Ph.D., 1882. Professor of inorganic geology, Johns Hopkins University, Baltimore, Md. Died 1894.

Williams, W. J. 1869–70. Chief chemist at the Frankford Arsenal, Philadelphia, Pa.

*Wolff, Chas. (Cincinnati, Ohio.) 1863–65.

Wolf, Theo. R. 1868–70. Ph.D., 1870. Professor of chemistry, Delaware College, and State Chemist, Newark, Del.

Woodrow, James. 1856.

*Wright, Harrison. (Wilkesbarre, Pa.) 1869–70. Died 1885.

* Deceased.

Issued with December Number, 1900.

Proceedings.

BOARD OF DIRECTORS.

A meeting of the Board of Directors of the American Chemical Society was held at the Chemists' Club, 108 W. 55th St., New York City, Saturday, October 27, 1900.

The meeting was called to order at 9 o'clock P.M., by President McMurtrie. All the directors were present.

The minutes of all previous meetings were approved as recorded in the secretary's book.

The librarian was authorized to subscribe for the *Berichte* of the German Chemical Society.

It was voted that the president appoint a committee of two directors to whom should be referred the manuscript of the index prepared by Mr. Sohon, and the galley proof thus far prepared, and who shall examine into the question of errors submitted by the editor and report the same to the Board at its next meeting. Messrs. E. E. Smith and C. A. Doremus were appointed such committee.

The treasurer of the society was empowered to pay the necessary expenses for inserting funeral notices of the late Dr. E. R. Squibb in the daily papers.

The minutes of the meeting were read and approved and the meeting then adjourned.

ALBERT C. HALE, *Secretary.*

COUNCIL.

A local section of the Society for the benefit of those members who reside in and around Kansas City, Mo., to embrace those portions of the States of Missouri and Kansas included between the 93rd and 98th meridians, with headquarters at Kansas City,

Mo. (714 Wyandotte St.), was authorized by the Council, November 6.

NAMES PROPOSED FOR MEMBERSHIP.

Boesch, Basil W., 36 Union Park, Boston, Mass.
Brown, C. Arthur, 630 W. 8th St., Cincinnati, Ohio.
Burtt, Stratford, 840 Halsey St., Brooklyn, N. Y.
Caspari, Chas. E., 312 W. 115th St., N. Y. City.
Cathcart, Wm. K., Maywood, N. J.
Chambliss, Hardee, 312 W. 115th St., N. Y. City.
Cook, Alfred N., Sioux City, Iowa.
Davis, Leon K., 185 Temple St., West Newton, Mass.
Dodge, Francis D., 60 S. Oxford St., Brooklyn, N. Y.
Dreyfus, Wolfram E., 175 W. 107th St., N. Y. City.
Henius, Max, 290 S. Water St., Chicago, Ill.
Hummell, A. S., Box 195, High Bridge, N. J.
Hunter, Edwin E., 122 S. 3rd St., St. Joseph, Mo.
Jordan, James O., 994 Washington St., Boston, Mass.
Josephson, Edgar, 131 Amity St., Brooklyn, N. Y.
Kingman, Wm. A., 55 Lincoln St., So. Framingham, Mass.
Laws, Eugene H., 54 Kellogg St., Fall River, Mass.
Mead, George H., Cellulose Products Co., Boston, Mass.
Morgan, Leonard P., 4714 Chester Ave., Philadelphia, Pa.
Owens, Wm. G., Bucknell Lab., Lewisburg, Pa.
Patterson, G. W., Indian Head, Md.
Roberts, Alfred E., 23 St. Botolph St., Boston, Mass.
Robison, F. W., Columbus Ford Lab., 103 State St., Chicago, Ill.
Shepherd, Earnest S., Remington, Ind.
Sinkinson, Joseph D., 85 Willow St., Brooklyn, N. Y.
Sparks, John C., Bement Ave., Livingston, Richmond Co., N. Y.
Stieglitz, Julius, Univ. of Chicago, Chicago, Ill.
Tingle, Alfred, Chem. Lab., Columbia Univ., N. Y. City.
Tingle, John B., Lewis Inst., Chicago, Ill.
Tolman, Lucius M., 1937 13th St., N.W., Washington, D. C.
Trowbridge, Dic. H., Lewis Inst., Chicago, Ill.
Waterhouse, James S., Cumberland Univ., Lebanon, Tenn.
Wahl, Dr. Robert, 290 S. Water St., Chicago, Ill.
Waters, Charles D., 6 Magnolia St., Roxbury, Mass.
Waters, C. E., Conn. Agr. Coll., Storrs, Conn.
Wesener, John A., Columbus Ford Lab., 103 State St., Chicago, Ill.
Ulmer, George F., Arbuckle Bros., Sugar Ref., Foot of Pearl St., Brooklyn, N. Y.

NAMES PROPOSED FOR ASSOCIATE MEMBERSHIP.

Bernheim, Geo. B., 74 E. 79th St., N. Y. City.
Hellon, Robert, 40 Lowther St., Whitehaven, Eng.
Hildreth, Thomas F., 530 W. 123rd St., N. Y. City.
Kaufman, G. Falk, 63 E. 74th St., N. Y. City.
Lindsay, William G., 207 W. 81st St., N. Y. City.
Moffatt, Miles R., Momaroneck, Westchester Co., N. Y.
Page, Robert W., 527 Third St., Brooklyn, N. Y.
Pickhardt, W. Paul, 1042 Madison Ave., N. Y. City.

ASSOCIATES ELECTED OCT. 12, 1900.

Braun, F. W., 501-505 N. Main St., Los Angeles, Cal.
Hicks, Walter T., 300 S. Broadway, N. Y. City.
Baxter, W. T., Rolla, Mo.

NEW MEMBERS ELECTED OCT. 12, 1900.

Johnson, Charles M., 701 Orchard St., Avalon, Pa.
Rademacher, Hermann A., Box 243, Lawrence, Mass.
Rogers, Herbert F., Provident Chem. Wks., St. Louis, Mo.
Vosburgh, C. H., High School, Jamaica, N. Y.

NEW MEMBERS ELECTED NOVEMBER 19, 1900.

Balcom, Reuben W., Mass. Inst. Tech., Boston, Mass.
Baltzly, Edwin B., Perth Amboy, N. J.
Benedict, Francis G., Middletown, Conn.
Braman, Winfred W., Durham, N. H.
Breves, Rudolph, Rahway, N. J.
Brown, John W., 126 Massachusetts Ave., Boston, Mass.
Champion, E. C., Iola Portland Cement Co., Iola, Kans.
Gordon, A. S., Oliver Iron Mining Co., Mountain Iron, St. Louis Co., Minn.
Grainger, William E., Cranberry, Mitchell Co., N. C.
Hemmings, Frederick J., 12 Pearl St., Boston, Mass.
Heckeroth, William C., 3443 N. 18th St., Philadelphia.
Heckman, J. Conrad, Larkin Soap Co., Buffalo, N. Y.
Melcher, Arthur C., 58 Bowen St., Newton Centre, Mass.
Morgan, W. C., Washburn College, Topeka, Kans.
Osgyani, Arpad, 64 Orchard St., Astoria, L. I., N. Y.
Pough, Francis H., 146 Hicks St., Brooklyn, N. Y.
Walton, James H., Jr., Room 317, 126 Massachusetts Ave., Boston, Mass.
Wheeler, Alwyn S., Chapel Hill, N. C.
Woods, Chas. D., Orono, Me.

ASSOCIATES ELECTED NOVEMBER 19, 1900.

Cary, Edward A., Lafayette College, Easton, Pa.
Felt, W. W., 9431 Normal Ave., Chicago.

Haskell, Albert A., Essex, Mass.
Howard, John J., 118 McKeen Hall, Easton, Pa.

CHANGES OF ADDRESS.

Belden, A. W., Tenn. C. I. and R. Co., Birmingham, Ala.
Bigelow, S. Lawrence, 1520 Hill St., Ann Arbor, Mich.
Blouin, R. E., care Sugar Planters' Expt. Sta., Honolulu, Hawaiian Territory.
Chamberlin, W. E., 111 Water St., N. Y. City.
Cornelison, R. W., Bloomfield, N. J.
Corse, Wm., 26 Hendrie Ave., Detroit Mich.
Falkenau, L., 538 Sacramento St., San Francisco, Cal.
Fay, Irving W., 177 Woodruff Ave., Brooklyn, N. Y.
Fourneaux, E. A., 130 W. 84th St., N. Y. City.
Gallagher, Phil. C., care Boston Gold Copper Sm. Co., Leadville, Colo.
Gallivan, F. B., 56 Prospect Place, Brooklyn, N. Y.
Granja, Rafael, Box 799, Kingston, R. I.
Gudeman, Edward, 4319 Vincennes Ave., Chicago, Ill.
Harding, Everhart P., Univ. of Minnesota, Minneapolis, Minn.
Harrison, J. B., care Harrison, Griffin & Co., Bridgewater Place, Manchester, Eng.
Hart, Edwin B., care Frau Rothchild, 11 Steinweg, Marburg, Germany.
Hinds, J. I. D., Univ. of Nashville, Nashville, Tenn.
Hopkins, Erastus, Lake Mary, Fla.
Jacobs, Chas. B., 44 Broad St., N. Y. City.
Keller, Edward, Box 724, Baltimore, Md.
Kendall, Arthur I., care Cinclare Cent. Factory, Cinclare, La.
Knight, Geo. W., 39 Front St., Schenectady, N. Y.
Kohr, D. A., 110 Huntington Ave., Boston, Mass.
Lazell, E. W., 1130 Walnut St., Philadelphia, Pa.
Logan, Miss Lily, Majestic Hotel, 72nd St. and 8th Ave., N. Y. City.
Lyng, M. H., Union Bag & Paper Co., Sandy Hill, N. Y.
Miller, S. C., 929 New York Ave., N. W., Washington, D. C.
Mommers, Richard, care Glucose Sugar Ref. Co., Marshalltown, Iowa.
Neilson, Thos., Silver Bell Camp., Redrock, Pinal Co., Ariz.
Neish, Arthur C., Columbia Univ., N. Y. City.
Nelson, E. K., 4220 Grand Boulevard, Chicago, Ill.
Parker, Francis L., Jr., Johns Hopkins Univ., Baltimore, Md.
du Pont, Pierre S., Lorain, Ohio.
Redpath, Leon W., 22 Catherine St., Newport, R. I.
Reuter, L. H., Rue de Mérode 17, Brussels, Belgium.
Rickards, Burt R., 607 Sudbury Bldg., Boston, Mass.

Riggs, G. W. 46 E. 29th St., N Y. City.
Rogers, Allen, 3605 Locust St., Phila., Pa.
Saarbach, Ludwig, 114 Pearl St., N. Y. City.
Sadtler, S. P., N. E. Cor. 10th and Chestnut Sts., Philadelphia, Pa.
Sargent, Chas. L., Murphy Varnish Co., Newark, N. J.
Schuyler, E. H., Erie High School, Erie, Pa.
Sherrard, V. P., Bland, N. M.
Shilstone, H. M., Miles' Planting & Mfg. Co., Burnside, La.
Thompson, Firman, Bundaberg, Queensland, Australia.
Van Gelder, A. P., Landing, N. J.
Walker, Claude F., New Britain, Conn.
Watson, E. T., 172 E. Main St., Chillicothe, Ohio.
Willcox, F. A., The Oaks, West, Sunderland, Eng.
Woolworth, James G., 11 Halsey St., Providence, R. I.

ADDRESS WANTED.

Emmens, Stephen H., formerly of 1 Broadway, N. Y. City.

MEETINGS OF THE SECTIONS.

NORTH CAROLINA SECTION.

The Fall meeting of the section was called to order in Crowell Science Hall, Trinity College, Durham, by the presiding officer, Prof. B. W. Kilgore, on November 9, 1900, at 8 P.M. Thirty members and visitors were present. The following papers were read and discussed:

"International Atomic Weights," by Charles Baskerville.

"The Soil Survey in North Carolina and the Practical Value of the Results," by C. D. Harris.

"Notes on the Adie and Wood Method for the Determination of Potassium," by Charles Baskerville and I. F. Harris.

"The Determination of Certain Organic Radicals," by Charles E. Brewer.

"Formaldehyde as a Preservative of Food Material and its Detection," by W. M. Allen.

"Richter and the Periodic Law," by F. P. Venable.

"The Basis of Scientific Thought," by Charles Baskerville.

"Kilgore's Modification of the Volumetric Method of Estimating Phosphoric Acid," by C. B. Williams.

Reduction Products of Dehydromucic Acid," by H. B. Hill and A. S. Wheeler.

"The Oxidation of Cellulose," by A. S. Wheeler.

"The Necessity for State Supervision of Escaping Noxious Vapors and Contamination of Streams from Manufacturing Enterprises," by Charles Baskerville.

"Some New Chromium Salts," by J. E. Mills.

"Exhibition of a Mechanism for Marking Calibrated Apparatus," by C. B. Williams.

"Individual Effort as a Factor in Organized Scientific Work," by B. W. Kilgore.

There being no further business the section adjourned.

C. B. WILLIAMS, *Secretary.*

NEW YORK SECTION.

The October meeting was held on the 5th at the Chemists' Club. The papers read were:

"Dr. Meyers' Tangent System of Sulphuric Acid Manufacture," by C. Glaser.

"Note on the Determination of Zinc in the Franklin, New Jersey, Ores by the Ferrocyanide Method," by William H. Bassett.

The Chair appointed the following Committee on Prizes: C. Richardson, P. de P. Ricketts, and M. Loeb.

M. T. BOGERT, *Secretary pro tem.*

The November meeting was held on Friday evening, November 9th, at the Chemists' Club.

The minutes of the previous meeting were read and approved.

A paper entitled "A Brief Review of Antipyrin and Its More Important Derivatives," was read by D. C. Eccles.

A motion was made to appoint a Committee on Papers. It was seconded and carried.

A motion to elect a vice-chairman was made and seconded, and the election proceeded with. M. T. Bogert was unanimously elected.

A motion to publish an annual report was lost.

The death of Dr. E. R. Squibb was formally announced and a brief sketch of his life by Dr. Charles Rice, was read by the chairman.

It was voted to appoint a committee to draft suitable resolutions expressing the Society's appreciation of Dr. Squibb's

character, of his services to chemical science, and of the loss sustained by his death; and that the said resolutions be engrossed in duplicate, a copy to be sent to his family and one to be preserved by the Society.

The meeting was then adjourned.

DURAND WOODMAN, *Secretary.*

LEHIGH VALLEY SECTION.

A regular meeting of the Lehigh Valley Section was held at South Bethlehem, in the chemical laboratory of Lehigh University, on Thursday evening, October 18th. Resolutions were adopted relative to the establishment of a National Standards Bureau and of a Bureau of Chemistry in the United States Department of Agriculture to prevent the adulteration, etc., of food, after which the following papers were read:

"A Water-jacketed Crucible," by Dr. Porter W. Shimer; "Rapid Estimation of Sulfur in Iron," by Dr. Porter W. Shimer; "Valuation of Iron in Magnetite Ore by Specific Gravity Test," by Dr. Joseph W. Richards; and "A Method for Preparing Exactly Normal, Seminormal, Decinormal, etc., Sulfuric Acid," by Richard K. Meade.

The papers were discussed by Drs. Shimer, Richards, and Von Wachtel. In addition to the above, Dr. Richards who had just returned from Paris, entertained the section with a short interesting talk on the metallurgical exhibits at the Exposition.

RICHARD K. MEADE, *Secretary.*

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